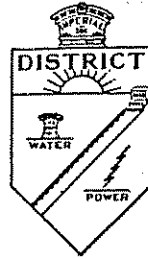


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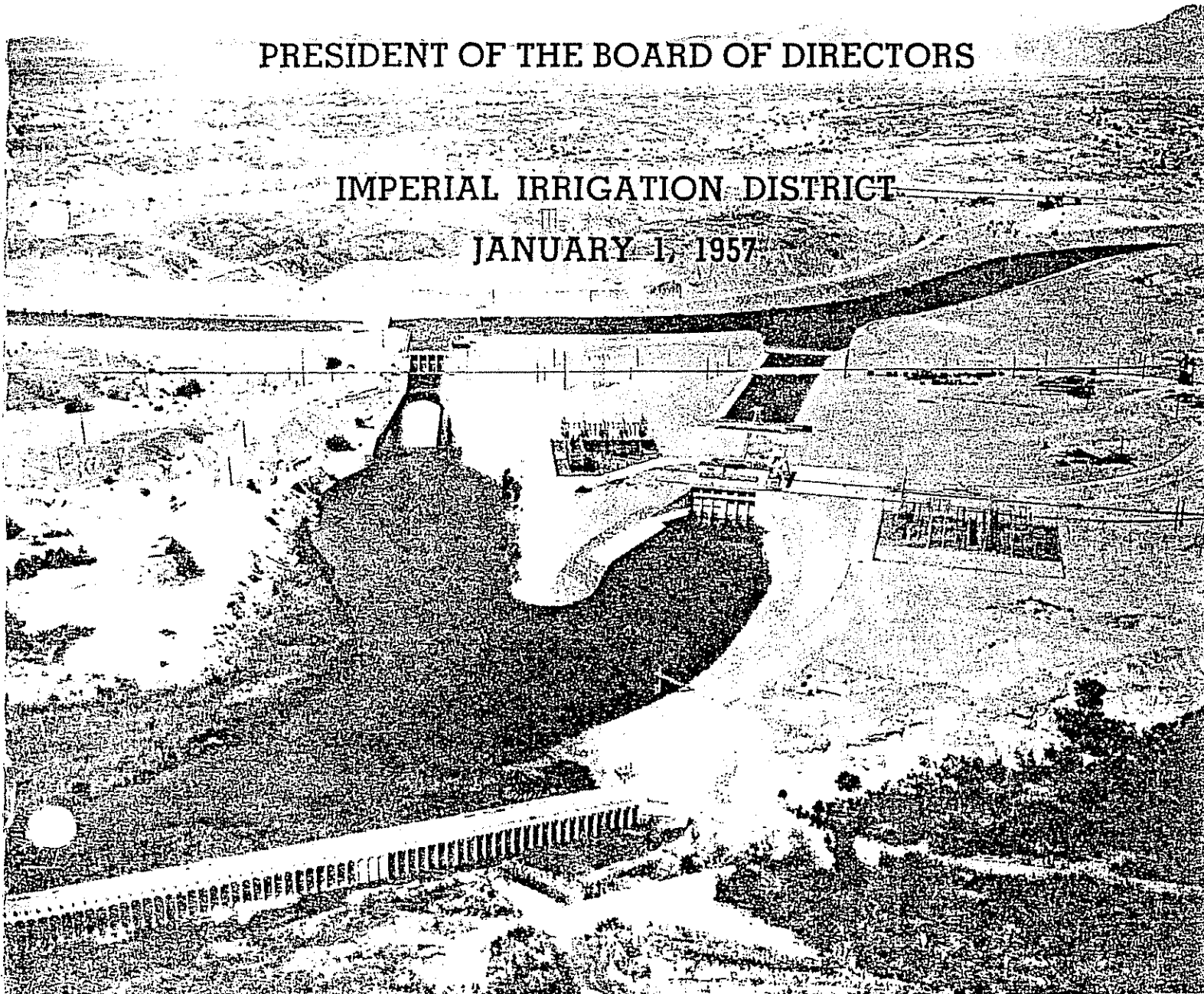
# ANNUAL REPORT

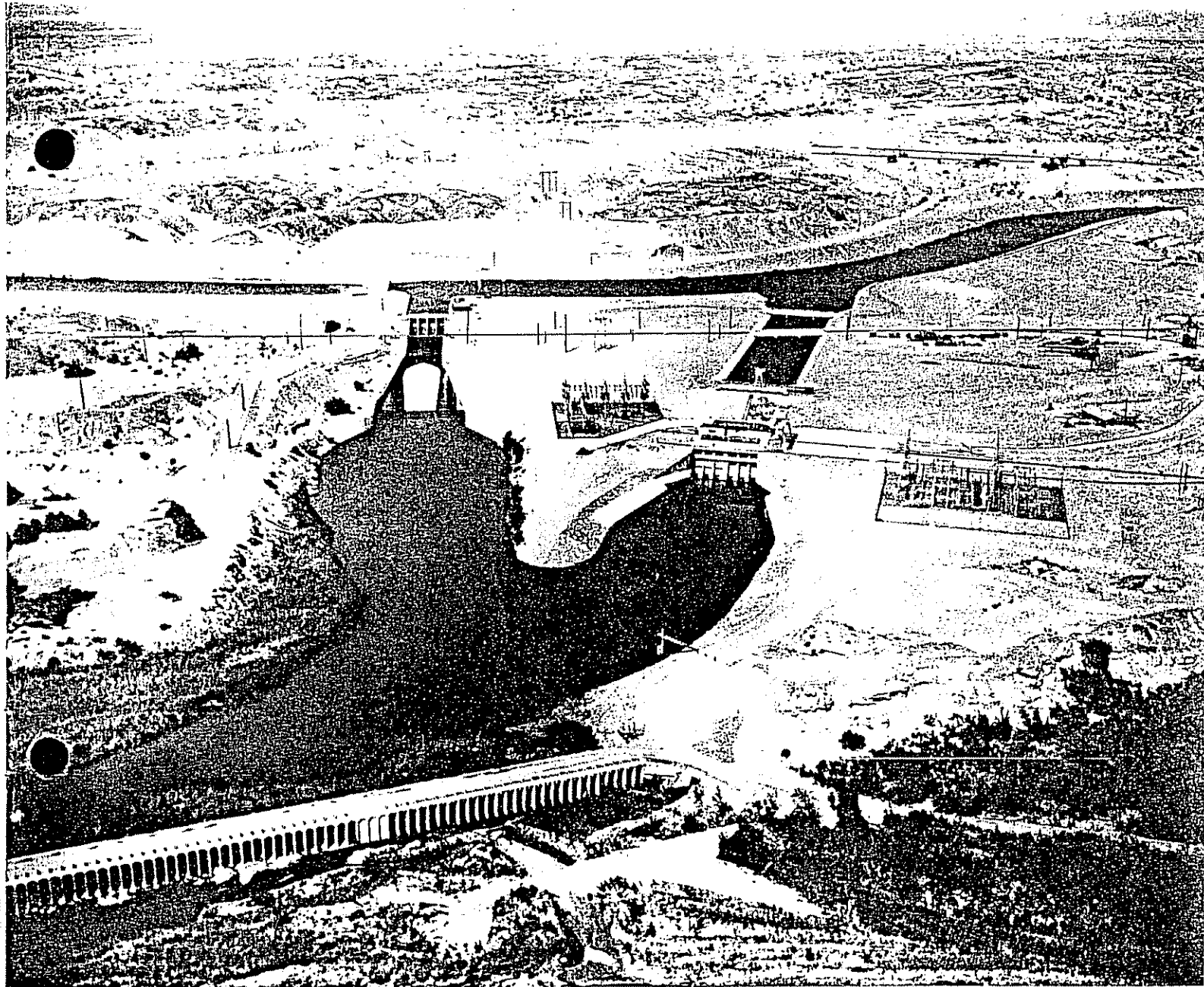
by the

PRESIDENT OF THE BOARD OF DIRECTORS

IMPERIAL IRRIGATION DISTRICT

JANUARY 1, 1957





Aerial view of Pilot Knob Hydro Plant showing Rockwood Heading in foreground.

1911

1956

# ANNUAL REPORT

by the

PRESIDENT OF THE BOARD OF DIRECTORS

IMPERIAL IRRIGATION DISTRICT

JANUARY 1, 1957

## DIRECTORS

Evan T. Hewes, President of the Board

Floyd T. Shank

Martin L. McFarland

John M. Bryant

E. F. Watton

## ASSESSOR-COLLECTOR

C. J. Park

## SECRETARY

Burton H. Bidwell

## TREASURER

Anna T. McManus

To the  
Board of Directors of  
Imperial Irrigation District  
and to All The People We Serve

El Centro, California  
January 1, 1957

I take great pleasure in presenting to you this annual report covering the operation of your District for the year 1956. In the pages that follow, I have attempted to set forth a few of the accomplishments which were planned to provide facilities that make it possible to serve more adequately current needs and, also, at the same time, have available capacity to handle the ever increasing demands brought about by the continued expansion within our Valley.

On January 17, 1956, a contract covering construction of Unit No. 3 of the District's El Centro Steam-Electric Station was awarded. This unit will provide an additional 44,000 kilowatts to the District's generation facilities and is the main feature of the 1955 Power Development Project which was authorized in June, 1955. The District has in its Power Revenue Fund, Prior Years, Power Reserve Fund and the Special Electric Plant Construction Fund sufficient monies to meet all estimated costs of this project. This addition is scheduled for completion about July 1, 1957.

Work on the Pilot Knob Hydro Plant continued on schedule with completion expected early in January, 1957. Other features of the 1953 Power Development Project include a transmission line from Drop No. 4 to Pilot Knob which was completed during the year and a line from Pilot Knob to the United States Bureau of Reclamation Knob Substation which was scheduled for completion in January, 1957.

In December, 1956, the District entered into an agreement with the California Electric Power Company and the Arizona Public Service Company thereby creating a power pool which will jointly supply electric power to each of the three contracting agencies.

One important irrigation project, the Vail Supply Canal designed to provide water direct from East Highline Canal to the Vail area, was completed in 1956. Work was begun on the Mesquite Lake area improvement plan and will continue in 1957 with final completion scheduled in 1958. This project will supply water direct from East Highline Canal to the Mesquite Lake area.

During the October term, 1956, in the Supreme Court of the United States, the case of Arizona vs. California was begun before the Honorable Simon H. Rifkind, Special Master, in the Federal Building in San Francisco. This case, in which Imperial Irrigation District is a codefendant, involves the right of use of the waters of the Colorado River. The District has participated actively in all phases of the case and has spent much time in study and preparation.

The Irrigation and Drainage Division continued to operate on a cash basis with Irrigation Division current revenue paying for all new construction, operation and maintenance, and retiring \$520,000 of General Obligation Irrigation Bonds.

The following pages contain the annual report for the fiscal year 1956

*Evan T. Hewes*

EVAN T. HEWES, President  
Board of Directors



EVAN T. HEWES

Member, Board of Directors, Imperial Irrigation District—March 14, 1933 - March 13, 1957  
President, Board of Directors, Imperial Irrigation District—October 11, 1933 - March 13, 1957  
Executive Superintendent, Imperial Irrigation District—January 18, 1938 - March 13, 1957  
Deceased—March 13, 1957

## TECHNICAL STAFF

Executive Superintendent .....	Evan T. Hewes
Executive Engineer and General Superintendent .....	B. A. Weiss
Consulting Engineer .....	M. J. Dowd
Legal Counsel .....	Harry W. Horton
Assistant Legal Counsel .....	R. L. Knox, Jr.
Assistant Legal Counsel .....	J. H. Carter
Business Manager .....	Vaness Jeffries
Superintendent Right-of-Way Department .....	J. E. Welch
Master Mechanic .....	L. V. Hess
Chief Civil Engineer .....	A. J. Boles
Superintendent Irrigation and Drainage Department .....	O. L. Fudge
Superintendent All-American Canal Department .....	J. M. Sheldon
Chief Electrical Engineer .....	J. F. Hesse
Superintendent Power Sales and Service .....	P. G. Post
Superintendent Coachella Area .....	R. M. Rinderhagen
Planning Engineer--Electrical .....	C. H. Youngstrom

# THE DISTRICT . . .

## Organization and Functions:

Imperial Irrigation District is a public corporation organized in 1911, under the California Irrigation District Act, as supplemented and from time to time amended (now codified as Division 11 of the Water Code of California), and since that date has been continuously in operation. The governing body is a board of five directors, each elected from a separate geographical division of the District for a term of four years by the qualified electors residing therein. The other elective positions are the Treasurer and Assessor-Collector.

The District performs three chief functions: (a) diversion and delivery of Colorado River water for irrigation and domestic uses; (b) operation and maintenance of drainage canals and facilities; and (c) generation and distribution of electricity.

## Location and Area:

The District is located entirely in Imperial County, California, approximately 100 miles east of San Diego, and includes all of the cultivated lands in Imperial Valley. In the irrigated area of the District there are 622,309 acres, of which 482,374 acres were in crops in 1956. Due to the fact the growing season in Imperial Valley extends over the entire year, the gross acreage of crops actually grown in 1956 amounted to 752,207 acres.

The District is the largest irrigation district in the United States with a present gross area of 905,559 acres. Under full development it is estimated that about 770,000 acres within the District will be irrigated, while the remainder will be occupied by cities, towns, railroads, highways, county roads, airports, canals, drains, rivers, and the Salton Sea drainage area.

# TABLE OF CONTENTS

	Page
FOREWORD .....	xii
 I. FINANCIAL	
A. Bonded Indebtedness .....	3
B. All-American Canal Contract .....	3
C. 1956 Operations at a Glance .....	4
D. Consolidated Statement of Assets and Liabilities and Net Worth .....	6
E. Comparative Income and Expense Statement .....	7
F. Fund Balances—December 31, 1956, and December 31, 1955 .....	8
G. Consolidated Revenue and Expense Statement .....	10
H. 1955-56 Assessment .....	12
I. Assessor-Collector's Office .....	12
J. Treasurer's Office .....	12
K. Auditor's Report .....	13
 II. WATER DIVERSIONS AND DELIVERIES	
A. Disposition of Water Diverted at Imperial Dam and Transported Through All-American Canal During 1956 .....	16
E. Disposition of Water Diverted from All-American Canal to Other Main Canals During 1956 .....	17
 III. ALL-AMERICAN CANAL	
A. Operation and Maintenance .....	21
1. General Comments .....	21
 IV. WATER DISTRIBUTION SYSTEM	
A. Operation and Maintenance .....	26
1. Main Canals .....	26
2. Lateral Canals .....	30
B. Construction .....	32
1. Main Canals .....	32
2. Lateral Canals .....	35
 V. DRAINAGE SYSTEM	
A. Operation and Maintenance .....	38
1. Main Drains .....	38
2. Lateral Drains .....	40
B. Construction .....	42
1. Main and Lateral Drains .....	42

# TABLE OF CONTENTS

	Page
VI. INVENTORY OF AREAS RECEIVING WATER SERVICE DURING 1956	
A. General Comments	42
B. Crop Surveys	44
C. Summary of Areas Served	47
VII. POWER DIVISION	
A. General Comments	50
B. Operation and Maintenance	50
C. Construction and Improvements	52
1. 1953 Power Development Project	52
2. 1955 Power Development Project	56
3. Additions and Betterments from Revenue Funds	56
D. Power Sales	56
VIII. LEGAL DEPARTMENT	
A. Arizona vs. California	64
B. Salton Sea Damage Claims	64
C. Central Valley Project Litigation	64
D. Miscellaneous Legal Proceedings	64
IX. EAST MESA	
A. Experimental Farm No. 1	68
B. Experimental Farm No. 2	68
X. NORTH END IMPROVEMENT PLAN	
A. General Comments	74
XI. MESQUITE LAKE AREA IMPROVEMENT PLAN	
A. General Comments	78
XII. IRRIGATION DIVISION FEDERAL CONTRACTS	
A. Public Law 750—81st Congress	82
B. All-American Canal Contract	82
XIII. COLORADO RIVER BOARD	
Colorado River Board	86
XIV. CONCLUSION	
Conclusion	90

## FOREWORD

Members of the Board of Directors, other elected officials, and department heads remained unchanged during the year 1956.

Elmer Hartzog who was Superintendent Irrigation and Drainage for many years and who first began his career in public service as a zanjero for Mutual Water Company No. 1 in 1907 died on December 18, 1956. He had retired on September 1, 1956, under the District's retirement plan. He was one of the Valley's most highly respected and best-beloved pioneers and contributed much to the development of the Valley.

During the past eight years, the District has recorded a favorable balance in tons of salt removed from the soil of Imperial Valley over tons of salt brought in with irrigation water. Concentration tests taken at various points indicated 4,119,389 tons of salt came into the Valley during the year 1956; similar tests of drainage water indicated 4,138,134 tons of salt were removed from the soil during the same period.

Because of the strong financial condition of the electric division of the District it was decided that Unit No. 3 of the El Centro Steam-Electric Station would be financed from money available in various power funds rather than from funds provided by a bond issue. By doing this a savings to the District on interest during construction and purchase of materials and equipment over what the cost would have been had the plant been financed by a bond issue exceeds \$700,000. This method of financing also makes it possible for the District to plan and construct this unit in a period of approximately two years.

## A. BONDED INDEBTEDNESS:

Changes in the District's long-term indebtedness for the calendar year ended December 31, 1956, are reflected in the following tabulation prepared by Treasurer Anna T. McManus:

	Total Bond Indebtedness Dec. 31, 1955	Bonds Retired	Total Bond Indebtedness Dec. 31, 1956
General Obligation Bonds .....	\$ 9,958,000	\$ 520,000	\$ 9,438,000
Power Revenue Bonds .....	33,298,000	640,000	32,658,000
Total .....	\$43,256,000	\$1,160,000	\$42,096,000

NOTE: \$24,500.00 paid First Refunding Bonds, and \$2,314.03 unpaid refinanced warrants are not included above. These bonds and warrants were called for redemption July 1, 1943, and funds were set aside for their retirement, but they have not been presented for payment. General Obligation Bonds outstanding on December 31, 1956, include \$250,000 of Second Refunding Bonds held by Power Division.

## B. ALL-AMERICAN CANAL CONTRACT

Imperial Dam and the All-American Canal were constructed pursuant to the terms of a contract dated December 1, 1932, between the District and the United States of America. The District is obligated to pay its proportionate share of the cost of the works constructed under the contract, without interest, in annual installments over a period of 40 years. These installments are to be 1 per cent each for the first 5 years, 2 per cent each for the next 10 years, and 3 per cent each for the final 25 years, of the total cost of the District's share of the works. Payments are to begin the year following announcement by the government of the completion of the canal.

When necessary, the District is required to levy and collect assessments so that, regardless of defaults or delinquencies in the payment of assessments, the United States will receive its money when due.

The District was notified on July 14, 1954, of the final determination of costs under this contract, the total due being \$25,020,000.90.

According to the terms of the contract, the District has been depositing with the government its net power proceeds from power development on the All-American Canal under a formula agreed to by the Secretary of the Interior on August 2, 1948, to be applied against the total amount of the cost reimbursement.

As of December 31, 1956, \$1,200,021.45 had been paid in, and two yearly payments of \$250,200.01 each, which became due in 1955 and 1956, were applied from this advance deposit account, leaving a balance advanced of \$699,621.43.

## C. 1956 OPERATIONS AT A GLANCE:

### 1. Irrigation Division (Not Including Irrigation Division in Mexico)

The District's Irrigation Div. Earned .....	\$5,809,897
From Assessments, Penalties and Costs .....	\$1,443,868
From Sales and Rentals of Land Held Under Assessment Deeds .....	8,277
From Interest on Redemption of Delinquent Assessments .....	5,689
From Water Deliveries, Gate and Pipe Service Charges .....	4,095,716
From Interest on Reserve Funds .....	43,854
From Rental of Land, Buildings and Equipment .....	73,774
From Sales of Rock and Gravel .....	1,546
From Other Sources .....	137,173

#### This is How It was Used or Set Aside—

For Operating Expenses .....	\$3,006,217
For Interest on Bonds .....	326,962
For Taxes .....	634
Which Accounts for Operating Ex- penses and Income Deductions of .....	\$3,333,813
Which Leaves a Balance of .....	\$2,476,084

#### Which Was Used as Follows:

For Bonds Retired .....	\$ 520,000
For Additions to Canal System .....	1,281,341
For Additions to Drainage System .....	371,293
For Additions to Buildings & Land .....	100,612
For New Equipment .....	202,838
	<u>\$2,476,084</u>

Which Accounts for .....	\$5,809,897
--------------------------	-------------

## 2. Power Division

The District's Power Division Earned .....	\$7,656,922
From Power Sales .....	\$7,447,047
From Interest on Reserve Funds .....	195,425
From Rental of Electric Property .....	7,235
From Other Sources .....	7,215

### This is How it was Used or Set Aside--

For Operating Expenses .....	\$3,603,492
For Interest on Bonds .....	713,430
For Taxes .....	12,026
Which Accounts for Oper. Expenses and Income Deductions of .....	\$4,328,948
Which Leaves a Balance of .....	\$3,327,974

### Which was Used as Follows:

For Additions to Plant .....	\$1,807,120
For Retirement of Electric Revenue Bonds .....	640,000
For Payments into Special Electric Plant Construction Fund .....	21,547
For Payments into Bond Reserve Funds .....	351,818
For Additions to Other Reserve Funds .....	29,681
For Deposit with United States on All-American Canal Costs .....	57,460
For Additions to Materials and Supplies .....	172,251
For Additions to Operating Funds .....	166,881
For Additions to Accounts Receivable .....	55,795
For Additions to Prepaid Expenses .....	25,421
	<hr/>
	\$3,327,974

Which Accounts for .....	\$7,656,922
--------------------------	-------------

D. CONSOLIDATED STATEMENT OF ASSETS AND LIABILITIES AND NET WORTH, DECEMBER 31, 1956  
(INTER-DIVISIONAL ACCOUNTS ELIMINATED)

ASSETS

Funds for:

Operation and Maintenance .....	\$ 6,509,347
Payment of Bond Principal and Interest ...	3,294,282
New Construction .....	2,319,700
Other Special Funds .....	732,514
Total Funds, Including \$7,979,800 Invested in U. S. Securities .....	\$12,855,843
Accounts Receivable .....	1,610,834
Materials and Supplies .....	1,355,308
Delinquent Assessments and Tax Deed Land .....	81,196
Advances on All-American Canal Contract...	699,621
Deferred Charges and Prepaid Expenses .....	629,369
Properties (Irrigation and Power Systems) .....	95,835,173
Total Assets .....	\$113,067,344

LESS LIABILITIES

Current Liabilities .....	\$ 2,568,798
Outstanding Bonds .....	41,870,500
Unpaid Warrants .....	2,314
Deferred Contract Installments .....	24,529,601
Reserves .....	124,577
Deferred Credits .....	1,815,089
	\$ 70,910,879
NET WORTH—From Operations .....	\$39,129,531
Contributed .....	3,026,934
	42,156,465
Total Liabilities and Net Worth .....	\$113,067,344

The Net Worth is 37% of Total Assets.

## E. COMPARATIVE INCOME AND EXPENSE STATEMENT:

### 1. Irrigation Division (Accounts of Subsidiary Company in Mexico Not Included)

	1956	Over 1955	Under 1955
1. Operating Revenue .....	\$ 5,766,043	\$ 595,489	
2. Operating Deductions .....	3,236,144	13,326	
3. Operating Income .....	\$ 2,529,899	582,163	
4. Other Income .....	43,854	3,751	
5. Gross Income .....	\$ 2,573,753	585,914	
6. Income Deductions .....	334,010		\$ 15,895
7. Net Income, or Current Earned Surplus .....	\$ 2,239,743	601,809	
1a. Current Assets .....	\$ 4,261,375	71,819	
2a. Investment and Fund Accounts ..	1,238,071	92,662	
3a. Fixed Assets .....	49,893,222	1,676,306	
4a. Other Assets & Deferred Charges	428,708		61,099
5a. Investment in Subsidiary Mexican Company .....	7,945,399		
Total Assets .....	\$63,766,775	1,779,688	
6a. Current Liabilities .....	\$ 678,950	31,949	
7a. Long-Term Liabilities .....	32,634,779		1,003,199
8a. Deferred Credits and Reserves .....	1,624,973	4,956	
9a. Surplus .....	28,828,073	2,745,982	
Total Liabilities and Surplus	\$63,766,775	1,779,688	

### 2. Power Division:

1. Operating Revenue .....	\$ 7,461,497	683,369	
2. Operating Deductions .....	4,743,328	381,370	
3. Operating Income .....	\$ 2,718,169	301,999	
4. Other Income .....	195,425		102,328
5. Gross Income .....	\$ 2,913,594	199,671	
6. Income Deductions .....	713,430		69,656
7. Net Income, or Current Earned Surplus .....	\$ 2,200,164	269,327	
1a. Current Assets .....	\$ 7,112,544	189,698	
2a. Investment and Fund Accounts ..	3,865,774		5,569,856
3a. Fixed Assets .....	44,032,135	7,933,849	
4a. Other Assets & Deferred Charges	729,386		215,487
Total Assets .....	\$55,739,839	2,338,204	
5a. Current Liabilities .....	\$ 1,919,869	945,638	
6a. Long-Term Liabilities .....	33,980,822		417,001
7a. Deferred Credits and Reserves ..	314,510	9,500	
8a. Surplus .....	19,524,638	1,800,067	
Total Liabilities and Surplus	\$55,739,839	2,338,204	

F. FUND BALANCES—DEC. 31, 1956, AND DEC. 31, 1955:

	December 31 1956	December 31 1955	Increase or Decrease*
IRRIGATION OPERATING FUNDS:			
Assessments Collected for Following Year .....	\$ 353,702	\$ 329,536	\$ 24,166
Other Cash Balances .....	1,494,496	1,491,934	2,562
Total Cash and Fund Balances .....	\$ 1,848,198	\$ 1,821,470	\$ 26,728

COMPANIA OPERATING FUNDS: (1)

Compania General Fund—Fund Balances .....	\$ 13,705	\$ 18,454	\$ 4,749*
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IRRIGATION BOND AND WARRANT FUNDS:

Assessments Collected for Following Year .....	\$ 522,084	\$ 514,226	\$ 7,858
Other Cash Balances .....	403,769	473,689	69,920*
Total Cash Balances .....	\$ 925,853	\$ 987,915	\$ 62,062*
Less Unpaid Matured Principal and Interest .....	( 49,774)	( 49,775)	( *1)
Less Interest Maturing Next January 1 .....	( 160,216)	( 169,241)	( *9,025)
Less Bonds Called for Redemption Next January 1 .....	( 150,000)	( 140,000)	( 10,000)
Total Fund Balances .....	\$ 565,863	\$ 628,899	\$ 63,036*

DRAINAGE FUND:

Assessments Collected for Following Year .....	\$ 120,558	\$ 118,667	\$ 1,891
Other Cash Balances .....	127,077	183,621	56,544*
Total Cash and Fund Balances .....	\$ 247,635	\$ 302,288	\$ 54,653*

MISCELLANEOUS IRRIGATION FUNDS:

Total Cash and Fund Balances .....	\$ 720,533	\$ 547,768	\$ 172,765
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	December 31 1956	December 31 1955	Increase or Decrease*
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**POWER OPERATING REVENUE FUNDS:**

Fund Balances .....	\$ 4,897,445	\$ 4,728,059	\$ 169,386
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**POWER BOND FUNDS:**

Cash Balances .....	\$ 2,371,709	\$ 2,113,816	\$ 257,893
Less Unpaid Matured Principal and Interest .....	( 23,844)	( 21,615)	( 2,229)
Less Interest Maturing Next January 1 .....	( 497,260)	( 507,548)	( *10,288)
Less Bonds Maturing Next January 1 .....	( 400,000)	( 250,000)	( 150,000)
Fund Balances .....	\$ 1,450,605	\$ 1,334,653	\$ 115,952

**POWER CONSTRUCTION FUNDS:**

Fund Balances .....	\$ 990,397	\$ 6,721,389	\$5,730,992*
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**MISCELLANEOUS POWER FUNDS:**

Fund Balances .....	\$ 1,090,368	\$ 1,278,798	\$ 188,430*
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**ALL FUNDS:**

Assessments Collected for Following Year .....	\$ 996,344	\$ 962,429	\$ 33,915
Other Cash Funds .....	12,109,499	17,557,528	5,448,029*
Total Cash Balances .....	\$13,105,843	\$18,519,957	\$5,414,114*
Less Bond Principal and Interest Matured or Due January 1 .....	( 1,281,094)	( 1,138,179)	( 142,915)
TOTAL FUND BALANCES .....	\$11,824,749	\$17,381,778	\$5,557,029*

( ) Deduction

\* Decrease

(1) Funds of Subsidiary Company in Lower California, Mexico.

Note: Cash fund balances include securities held.

**G. CONSOLIDATED REVENUE AND EXPENSE STATEMENT — JANUARY 1  
TO DECEMBER 31, 1956—IMPERIAL IRRIGATION DISTRICT  
AND COMPANIA DE TERRENOS Y AGUAS DE LA BAJA CALIF., S. A.:**

REVENUE	Consolidated	Imperial Irrig. District Power Div.	Irrig. U.S.	Compania de T. y A. Irrig. Mex.
<b>OPERATING REVENUES:</b>				
Realized Revenue from:				
Current Year Assessments .....	\$ 1,394,637		\$ 1,394,637	
Penalties and Costs on Assessments .....	4,387		4,387	
Redemption of Delinquent Assessments .....	44,844		44,844	
Interest Collected on Redemptions .....	5,689		5,689	
Total Collected by Assessor-Collector .....	\$ 1,449,557		\$ 1,449,557	
Sales of Land Held under Assessment Deeds .....	6,577		6,577	
Equivalent of Current Assessments on Tax Deed Land .....	1,254		1,254	
Rental of Land Held under Assessment Deeds .....	424		424	
Interest on Land Sales Contracts .....	22		22	
Total Revenues Derived from Assessments .....	\$ 1,457,834		\$ 1,457,834	
Water Sales .....	4,117,916		3,994,163	\$123,753
Gate Service Charges .....	60,467		60,467	
Pipe Service Charges .....	41,086		41,086	
Rental of Buildings .....	54,552	\$ 7,235	47,317	
Rental and Sales of Operative Land ..	5,369		5,369	
Rental of Equipment .....	21,088		21,088	
Contributions for Oper. & Maint. of All-American Canal .....	136,483		136,483	
Sales of Rock .....	1,546		1,546	
<b>POWER SALES:</b>				
Residential or Domestic Sales .....		2,641,638		
Rural Sales—Agricultural Power .....		531,540		
Commercial and Industrial Sales .....		2,792,331		
Public Street and Highway Lighting ..		49,265		
Other Sales to Public Authorities .....		73,956		
Sales to Other Electric Utilities .....		1,285,866		
Interdepartmental Sales .....		72,451		
Total Power Sales .....	7,447,047	\$7,447,047		
Miscellaneous Revenue .....	7,905	7,215	690	
<b>TOTAL OPERATING REVENUES</b>	<b>\$13,351,293</b>	<b>\$7,461,497</b>	<b>\$ 5,766,043</b>	<b>\$123,753</b>

	Consolidated	Imperial Irrig. District Power Div.	Irrig. U.S.	Compania de T. y A. Irrig. Mex.
Total Operating Revenue—Brt. Fwd. ....	\$13,351,293	\$ 7,461,497	\$ 5,766,043	\$ 123,753
<b>OPERATING REVENUE DEDUCTIONS:</b>				
<b>Operating Expenses:</b>				
Oper. & Maint. of Irrig. System .....	\$ 2,402,784		\$ 2,272,115	\$ 130,669
Oper. and Maint. of All-Amer. Canal .....	668,158		688,158	
Oper. and Maint. of Imperial and Laguna Dams .....	37,928		37,928	
Oper. and Maint. of Power System:				
Production Expenses .....		\$ 1,460,966		
Power Purchased .....		654,937		
Transmission Expenses .....		159,420		
Distribution Expenses .....		538,579		
Accounting and Collecting Exp. ....		255,506		
Sales Promotion Expenses .....		70,045		
Administrative and Gen. Exp. ....		464,039		
Total Power Oper. and Maint. ....	3,603,492	\$ 3,603,492		
Miscellaneous Expenses .....	9,460		8,016	1,444
Total Operating Expenses .....	\$ 6,741,822	\$ 3,603,492	\$ 3,006,217	\$ 132,113
<b>Depreciation of:</b>				
Equipment and Facilities .....	48,404		43,573	4,831
Buildings .....	32,560		32,555	5
Power System .....	1,091,843	1,091,843		
Amort. of Canal System and Defense Works, Mexico .....	145,556			145,556
Amort. of Plant Acquisition Adj. ....	35,967	35,967		
Losses on Sales and Retirements of Assets .....	153,165		153,165	
Taxes .....	13,435	12,026	634	775
Total Operating Revenue Deductions .....	\$ 8,262,752	\$ 4,743,328	\$ 3,236,144	\$ 283,280
Net Operating Revenue .....	\$ 5,088,541	\$ 2,718,169	\$ 2,529,899	\$ 159,527*
<b>OTHER INCOME:</b>				
Interest on U.S. Bonds and Treasury Notes .....	\$ 164,844	\$ 140,894	\$ 23,950	
Int. on Bank Deposits & Misc. Int. ....	74,435	54,531	19,904	
Total Other Income .....	\$ 239,279	\$ 195,425	\$ 43,854	
GROSS INCOME .....	\$ 5,327,820	\$ 2,913,594	\$ 2,573,753	\$ 159,527*
<b>INCOME DEDUCTIONS:</b>				
Interest on District Bonds .....	\$ 1,040,392	\$ 713,430	\$ 326,962	
Amortization of Debt Discount .....	7,048		7,048	
Total Income Deductions .....	\$ 1,047,440	\$ 713,430	\$ 334,010	
NET INCOME—EARNED SURPLUS, CURRENT YR. ....	\$ 4,280,380	\$ 2,200,164	\$ 2,239,743	\$ 159,527*

\*Deficit

## H. 1955 - 56 ASSESSMENT:

The Board of Directors of Imperial Irrigation District on August 16, 1955, adopted an estimated budget of \$5,387,911 for the calendar year 1956, and fixed the annual assessment levy for the 1955-56 assessment year at \$3.00 per \$100 of assessed valuation. This has been the assessment levy since the 1949-50 assessment year. The aggregate assessed value of the lands within the District, as equalized, is the sum of \$47,713,095 as appears in the assessment rolls for the year 1955. The deduction from the aggregate assessed value of the lands in the District of 15 per cent for anticipated delinquencies, as provided by Section 25801 of the Water Code of the State of California, leaves the net equalized assessed valuation of said lands at \$40,556,130.75.

The amount to be raised by assessment for the 1955-56 assessment year is classified as follows:

**Redemption Fund:** 16.03 mills on the dollar to raise \$650,000 to pay interest on irrigation bonds and to provide for their retirement.

**Drainage Fund:** 3.70 mills on the dollar to raise \$150,000 for necessary improvements to and extension of the District's drainage system.

**Operation and Maintenance:** 10.27 mills on the dollar to raise \$416,511.46. This amount, together with other revenues of the District, will provide funds to meet the estimated current expense of the District.

## I. ASSESSOR-COLLECTOR'S OFFICE:

The assessed valuation of all land within the District for the 1955-56 assessment year was \$47,713,095, as compared to \$47,129,065 for the 1954-55 assessment year. This increase of \$584,030 in assessed valuation is brought about by two items: (1) return of tax deed land to the assessment rolls, and (2) the increase in value of land that has been reclaimed. There was no general increase in assessed valuation.

At the close of business on June 25, 1956, the delinquent date for the 1955-56 assessment year, \$1,384,552.17 or 95.75 per cent of the total assessment had been paid. This left unpaid \$61,091.63 or 4.25 per cent, as compared to 3.58 per cent for the previous year. (Delinquent gate charges and penalties are included in collections and unpaid balance.)

## J. TREASURER'S OFFICE:

In addition to the general office work of the Treasurer's Office, the following business was handled during the year 1956:

85,905 bonds and coupons were paid, for which 1,128 checks were issued and involving an expenditure of .....	\$ 2,505,097.15
Cashier, Payroll, Compania Payroll, and Expense checks amounting to 43,007 checks and involving an expenditure of .....	17,065,319.43
Total Expenditure .....	\$19,570,416.58

### INVESTMENTS

Total Securities—December 31, 1955 .....	\$ 9,288,800.00
Securities Purchased—1956 .....	2,000,000.00
<hr/>	
Total Securities .....	\$11,288,800.00
Less Securities Cashed—1956 .....	3,309,000.00
<hr/>	
Total Securities—December 31, 1956 .....	\$ 7,979,800.00

### INTEREST EARNED

Interest earned on U.S. Securities—Year 1956 .....	\$ 164,844.00
Interest earned on Bank Deposits & Misc. Interest .....	74,435.00
<hr/>	
Total Interest earned—Year 1956 .....	\$ 239,279.00

### INCINERATION CERTIFICATE

Cremated Securities: April 25, 1956  
Covering Period: January 1, 1955—December 31, 1955  
Securities Destroyed: 1,035 Bonds and 111,832 Coupons

## K. AUDITOR'S REPORT

The auditor's report for the calendar year 1956 was filed with the District's Board of Directors on June 25, 1957.

Consolidated gross revenue of the District for 1956 according to the report was \$13,409,432.07, as compared to \$12,146,364.26 for 1955. Gross revenue for the Irrigation Division for 1956 was \$5,673,204.44, compared to \$5,080,948.06 for 1955. Power Division's gross revenue for 1956 was \$7,612,475.02, compared to \$6,939,576.05 for 1955. Gross revenue for the Compania de Terrenos y Aguas amounted to \$123,752.61, as compared to \$125,840.15 for 1955.

Total expenses of the three divisions amounted to \$9,156,295.21 in 1956, compared to \$8,692,386.90 in 1955. The distribution of these expenses to the three divisions was as follows: Irrigation Division, \$3,442,050.99, as compared to \$3,450,580.98 in 1955; Power Division, \$5,431,324.80, as compared to \$4,958,607.50 in 1955; and Compania de Terrenos y Aguas, \$282,919.42, as compared to \$283,198.42 in 1955.

Consolidated net revenue for the three divisions amounted to \$4,253,136.86, as compared to \$3,453,977.36 in 1955, or an increase of \$799,159.50. Net revenue for the Irrigation Division was \$2,231,153.45, as compared to \$1,630,367.08 in 1955; Power Division net revenue was \$2,181,150.22, as compared to \$1,980,968.55 in 1955; and the Compania de Terrenos y Aguas recorded a net loss of \$159,166.81, as compared to a loss of \$157,358.27 in 1955 (represents depreciation not cash).

Sources of revenue for the Irrigation Division and amounts received from each source were as follows: Assessment revenues (current), \$1,399,023.76; assessment revenues (delinquent), \$58,385.38; water sales,

\$4,095,716.47; and interest, discounts and miscellaneous sales, \$120,078.83, a grand total of \$5,673,204.44.

Expenses of the Irrigation Division were distributed as follows: Operation and Maintenance Costs—canal system, \$1,711,967.00; drainage costs, \$515,387.00; All-American Canal, \$589,603.00; and sundry property costs, \$45,394.92, a total of \$2,862,351.92. Administration and Overhead Costs—depreciation and amortization of facilities, \$75,945.64; provision for doubtful accounts, \$2,118.00; miscellaneous expense, retirements and losses, \$167,624.88, a total of \$245,688.52. Financial Costs—interest on obligations, \$326,926.15; amortization of bond discounts, \$7,048.40, a total of \$334,010.55.

Sources of revenue for the Power Division and the amounts received from each source were as follows: Power sales, \$7,447,046.78; rental of property and equipment, \$7,235.16; interest, discounts and miscellaneous sales, \$158,193.08, a total of \$7,612,475.02.

Operation and Maintenance expenses of the Power Division were as follows: Power generation and purchases, \$2,093,297.00; power transmission and distribution, \$697,999.00, a total of \$2,791,296.00.

Administration and overhead expenses for the Power Division were: Salaries and expenses, \$779,990.00; depreciation and amortization of facilities, \$1,127,809.72; provision for doubtful accounts, \$19,600.00; miscellaneous expenses, retirements, and losses, \$43,649.04, a total of \$1,971,048.76.

Financial costs of the Power Division consisted of interest on obligations, \$668,980.04.

Assets and liabilities of the District at the close of the year 1956, as shown by the audit report, are set forth in the following tabulation which, also, gives, for comparison, the 1955 totals:

		Irrigation	Power	Compania
Assets	—1956	\$63,709,713	\$55,726,061	\$2,057,469
	—1955	61,954,548	53,409,638	2,219,134
Liabilities	—1956	34,889,868	36,243,023	8,253,724
	—1955	35,641,708	35,939,791	8,249,898
Surplus	—1956	28,819,845	19,483,038	6,196,255*
	—1955	26,312,840	17,469,847	6,030,764*

\*Deficit

II.

WATER DIVERSIONS AND DELIVERIES

**A. DISPOSITION OF WATER DIVERTED AT IMPERIAL DAM  
AND TRANSPORTED THROUGH ALL-AMERICAN CANAL  
DURING 1956:**

	<b>Acre-Feet</b>	<b>Acre-Feet</b>
Water Metered at Station 60, Diverted at Imperial Dam .....		4,791,114
*Diversions to Yuma and Bard Projects .....	1,063,167	
Loss from Imperial Dam to Pilot Knob .....	160,845	
Diverted to River at Pilot Knob .....	3,642	1,227,654
Water in All-American Canal Below Pilot Knob ....		3,563,460
Diversion to Coachella Canal .....	547,789	
Loss from Pilot Knob to Coachella Turnout ....	108,925	656,714
Water in All-American Canal Below Coachella Turnout .....		2,906,746
Diversions from All-American Canal from Coachella Turnout to and Including East Highline Canal .....	1,126,349	
Loss from Coachella Turnout to East Highline Canal .....	26,608	1,152,957
Water in All-American Canal Below East Highline Canal .....		1,753,789
Diversions from All-American Canal from East Highline Canal to and Including Central Main Canal .....	1,022,525	
Loss from East Highline Canal to Central Main Canal .....	9,594	1,032,119
Water in All-American Canal Below Central Main Canal .....		721,670
Diversions from Central Main Canal to and Including West Side Main Canal .....	705,134	
Loss from Central Main Canal to and Including West Side Main Canal .....	16,536	721,670

\*Water diverted to the Yuma and Bard projects is not charged to or a part of water diverted for Imperial Irrigation District or Coachella Valley County Water District. Imperial Irrigation District diverts and transports through the upper section of the All-American Canal these agencies' water, in accordance with terms of the All-American Canal Contract dated December 1, 1932, and the contract amendatory of and supplemental to the All-American Canal Contract of December 1, 1932, dated March 4, 1952.

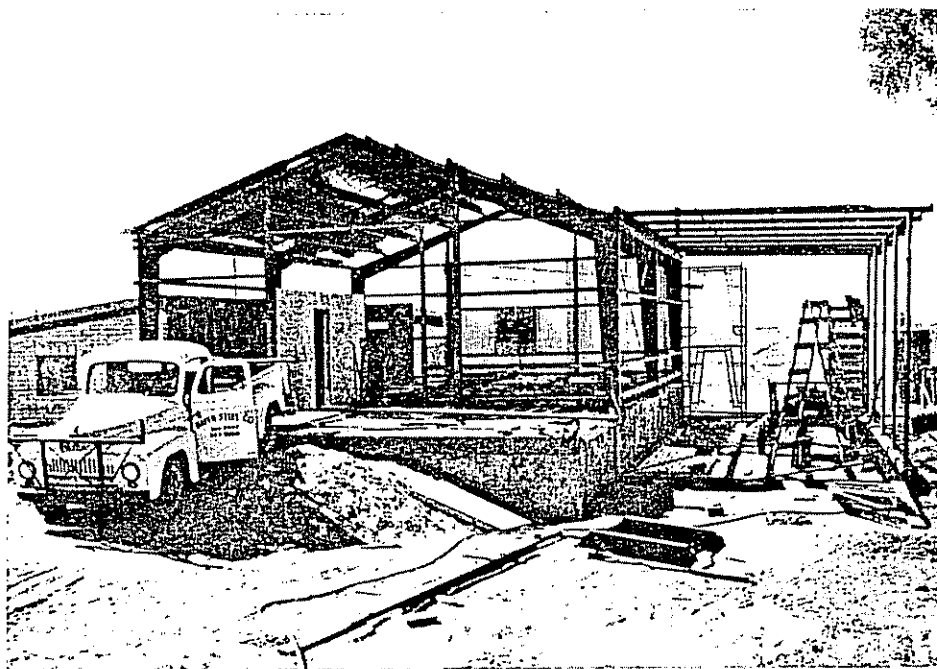
B. DISPOSITION OF WATER DIVERTED FROM  
ALL-AMERICAN CANAL TO OTHER MAIN CANALS  
DURING 1956:

	Acre-Feet	Acre-Feet
Water Below Drop No. 1		2,906,746
Loss in All-American and Other Main Canals Before Being Diverted to Lateral Canal System	254,094	
Operational Loss from All-American and Other Main Canals	55,737	309,831
Delivered to Lateral Canal System		2,596,915
*Loss in Lateral Canal System Before Delivery to Ranches	532,304	
Operational Loss from Lateral Canals	52,551	584,855
Deliveries to Ranches		2,012,060

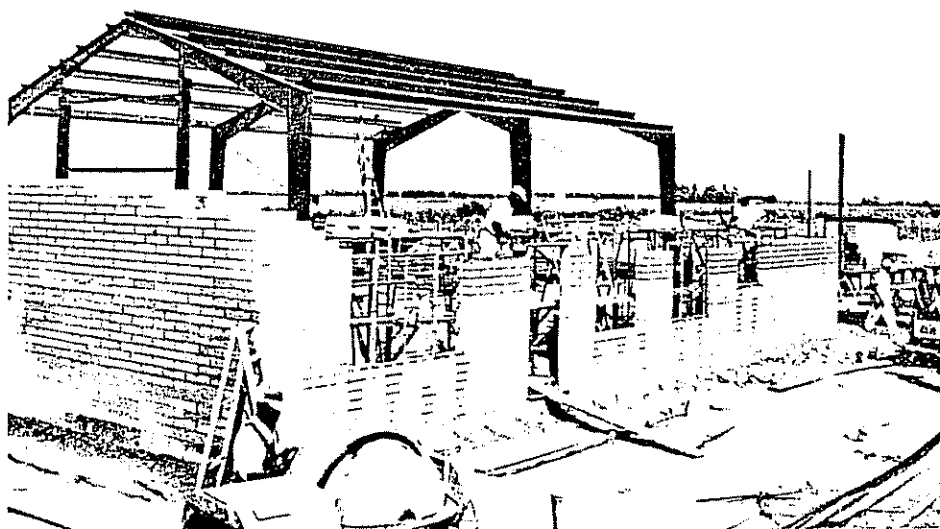
\*Diversions to lateral canals from main canals are based on current meter measurements. Deliveries to ranches are based on gate measurements. Gate measurements are approximately 10 per cent below meter measurements, resulting in the delivery of 10 per cent more water than is charged for. This difference is included in the total shown as loss in lateral canal system before delivery to ranches.

III.

ALL-AMERICAN CANAL



Erection of steel framework for warehouse section of combination warehouse and office at Calexico.



Erection of pumice block walls for combination warehouse and office to be utilized by the Western Division of the All-American Canal Department and the Calexico Water Division.

## A. Operation and Maintenance:

### 1. General Comments

The All-American Canal operates and maintains the All-American Canal headworks, desilting basins, the main All-American Canal from the headworks to West Side Main Canal, a distance of 79.68 miles; the Coachella Branch of the All-American Canal from the turnout structure at Drop No. 1 on the main All-American Canal to a structure designated as 6-A Check, a distance of 48.89 miles and New Briar Canal from Drop No. 5 on the All-American Canal to the boundary bridge, a distance of 2.63 miles. It also maintains 36.65 miles of open drains, and 8.80 miles of tile drains which are appurtenant to the canals.

Operation and maintenance forces are divided into two operating divisions, one responsible for operation and maintenance from Imperial Dam to Pilot Knob with operating facilities at the Dam, the other with operating facilities east of Calexico, responsible for operation and maintenance of the main All-American Canal from Pilot Knob to West Side Main and of the Coachella Branch from the turnout structure at Drop No. 1 to 6-A Check.

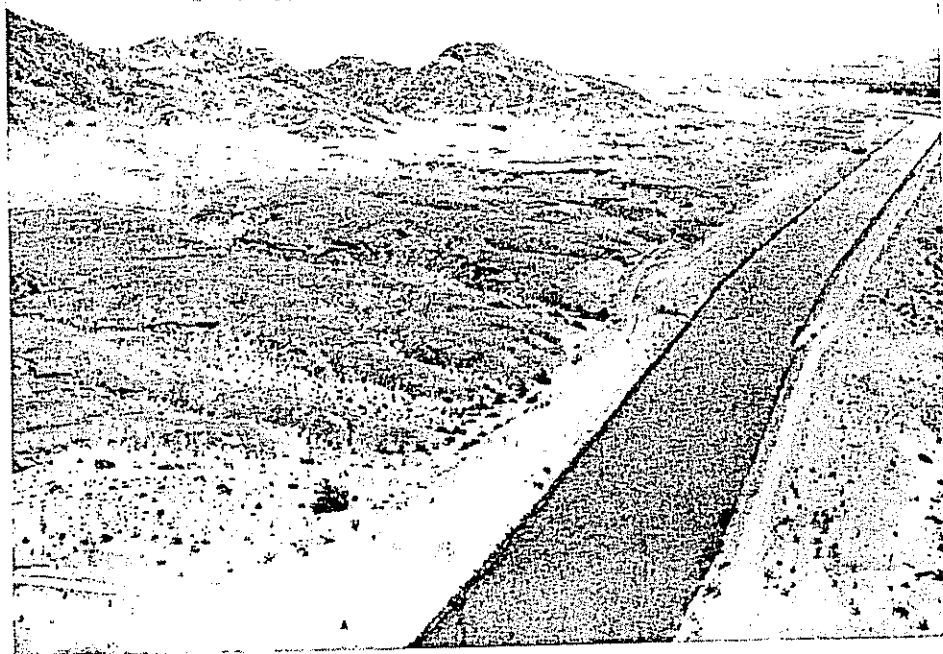
Diversions from the Colorado River below the desilting works at Imperial Dam amounted to 4,791,114 acre-feet in 1956. Disposition of this water is covered in Section II, Water Diversion and Deliveries, found on pages—— of this report. The maximum daily flow for the year occurred on June 3, 1956, when 8,710 cubic feet per second was diverted; the minimum daily flow occurred on January 3, 1956, when 2,790 cubic feet per second was diverted.

In 1956, \$688,158 was expended for operation and maintenance of all facilities referred to in the first paragraph of this section. This compares to \$669,089 expended in 1955 and \$669,342 in 1954. Most of the increased expenditure in 1956 was due to repair work on the Coachella Branch as a result of damages from runoff from heavy rains in the Chocolate Mountains in August, 1955.

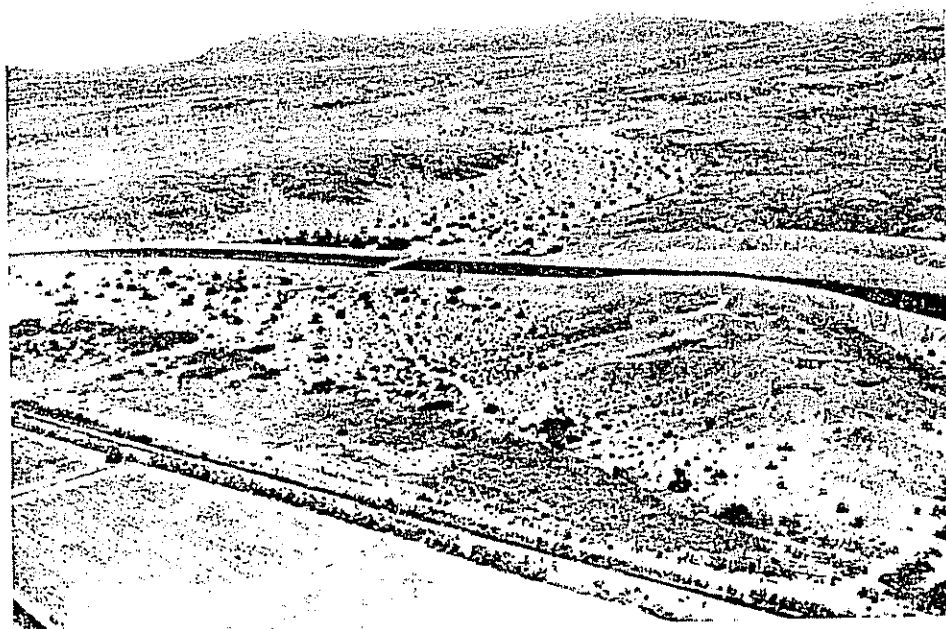
Operations were normal at Imperial Dam during the entire year with various items of equipment out of service for nominal periods of time for routine inspection and maintenance. Because of the low flow of water in the river, trash accumulations at the Dam were light and the trashrack and disposal system operated without difficulty. Sluicing operations were conducted at 15-minute intervals on September 24 and 26 and October 9 and 15. The desilting basins operated continuously, except for routine maintenance and regular dewatering from April through September for moss control.

Maintenance work performed during the year included a variety of items, including maintenance of structure equipment, electrical maintenance, sandblasting and painting, road maintenance, weed and brush control, sand-hill control, erosion control, cathodic protection, and structural repairs. Maintenance of the canal required 19,370 man-hours while maintenance of mechanical equipment required 24,223 man-hours.

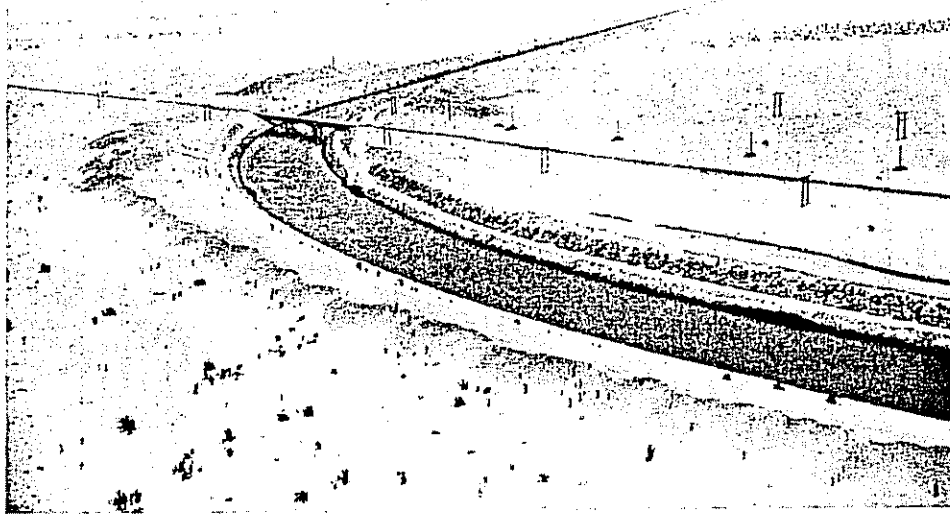
Weed and brush control required the use of both a truck and a boat, each equipped to burn growth along the canal bank, using a low grade fuel oil, or, with slight modification, each may be used to apply chemical mixtures. In many instances, the use of chemicals is found to



All-American Canal above Pilot Knob showing storm wash inlet structure.



All-American Canal Station 888 Storm Wash Overpass, Cargo Muchacho Mountains in background.



U. S. Highway 80 bridge crossing All-American Canal in Sand Hill area. Pilot Knob in background.



Reinforcing All-American Canal levee between Allison and Alamo River. Forty-seven thousand cubic yards of earth were imported for this work.

be more economical and as a result the equipment was used 3,671 hours for chemical work, as compared to 1,654 hours for burning operations.

Protection of the canal banks from erosion is accomplished in most locations by placing rock in the affected areas. Such work in 1956 required the use of 11,016 cubic yards of rock.

In some areas where sandy conditions prevail the roads along the canal bank are improved by placing of a layer of clay on the surface of the road. Road surfacing in 1956 required 1,187 cubic yards of clay. Routine road maintenance is carried on throughout the year requiring the continual use of one motor grader and one sprinkler truck. In some locations where sand-hill control is required a bulldozer is used to supplement the motor grader.

Cathodic protection systems are in use throughout the system to prevent corrosion of the submerged metal gates and other metal parts of the structures that are below the water line. Routine inspection and maintenance of these systems was carried on continuously throughout the year.

IV.

WATER DISTRIBUTION SYSTEM

## A. Operation and Maintenance:

### 1. MAIN CANALS

#### (a) General Comments:

The demand for water during 1956 was 50,986 acre-feet higher than in 1955. There were 245,264 orders for water processed, requiring the delivery of 2,012,060 acre-feet of water to the water users. In 1955, there were 236,328 orders processed and 1,961,074 acre-feet of water delivered.

Of the number of orders received in 1956, there were 198,250 for irrigation water and 47,014 for stock water, compared to 193,512 orders for irrigation water and 42,816 orders for stock water in 1955.

Effective March 1, 1956, the Board of Directors passed a resolution revising the regulations for the delivery of water to water users. The District's water orders must be placed at Imperial Dam with the Imperial Dam Supervisor, who represents the Secretary of the Interior, before 4:00 p.m. of each Wednesday for water requirements for the following week, Monday through the next Sunday, so that the Imperial Dam Supervisor can forward the orders to the Office of River Control at Boulder City, Nevada.

The District formerly allowed an average of approximately 400 feet of water for operational water in its distribution canals, to allow for quick changes of water from one part of the system to another on 24-hour notice.

Because of the continuing low runoff of the Colorado River watershed and a reduced amount of storage in Lake Mead, on June 1, 1955, the Bureau had to tighten River operations, which limited release of water strictly to water to be used for Treaty, and agricultural and domestic needs.

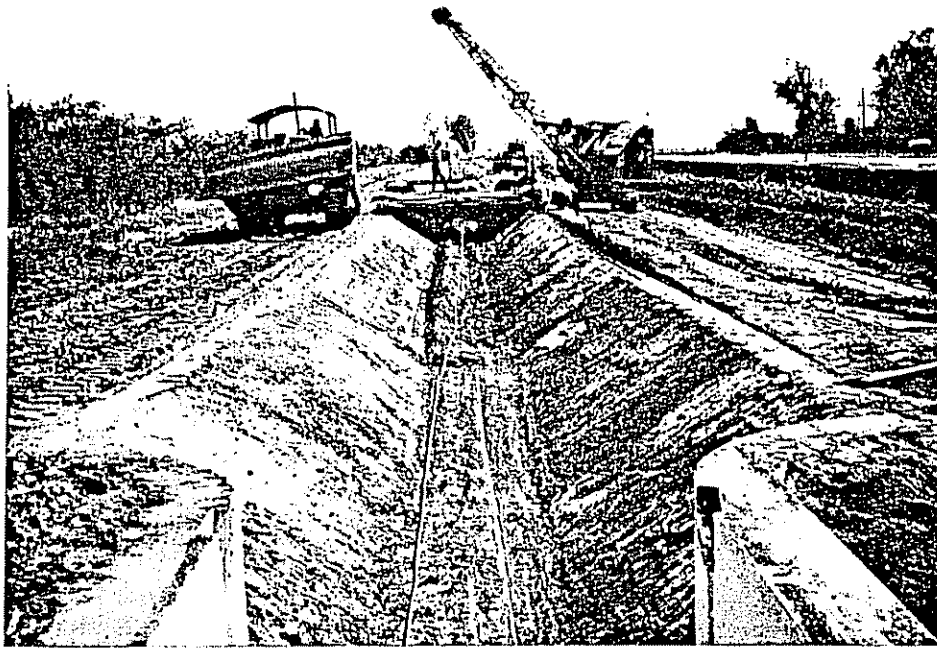
The change in the regulations effective March 1, 1956, was to try and accomplish two objectives: To meet the operational problem caused by the Bureau of Reclamation's operating the Colorado River under the laws of the Mexican Water Treaty and the Boulder Canyon Project Act with a shortage of water in the Colorado River Basin, and to try some method of a more uniform delivery of water through the week to prevent wasting to the Sea, the large quantity of water in our canals, caused by the large week-end fluctuations of water orders. Valley-wide co-operation by the water users has permitted the accomplishment of these two objectives.

No incident occurred in the operation of the main canal system during the year to require a major water cutoff.

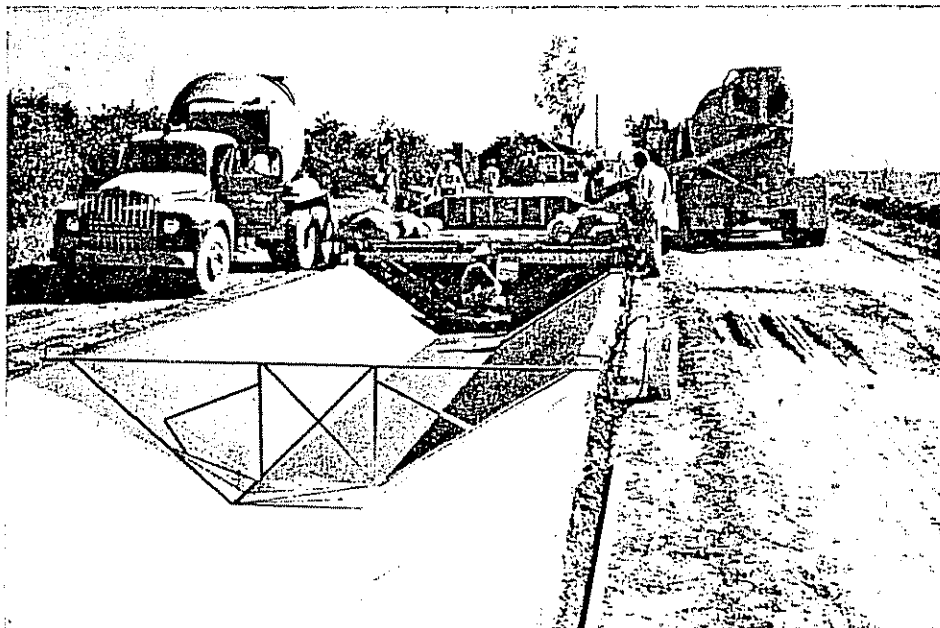
The program of weed control was continued throughout the year on the entire system by the use of chemicals, burning, and aromatic oil.

The major portion of this work was directed toward the elimination of perennial growth by application of chemicals. The principal operations on burning were on removal of debris following application of chemicals, and on mature annual growth on the channels.

Patrolmen covered 24,835 miles on the canal system on rodent control work.



District Shop fabricated side slope trimmer preparing subgrade for concrete lining of portion of Evergreen Canal from Gate 20 to Gate 21, approximately one-half mile.



Pouring concrete lining on portion of Evergreen Canal from Gate 20 to Gate 21, approximately one-half mile. Maximum capacity of 40 cubic feet per second.

**(b) East Highline Canal:**

East Highline Canal is approximately 50 miles in length, with 190 operational structures required for the delivery of water to the lateral canal system. The maximum daily diversion to East Highline Canal from the All-American Canal for 1956 was 2,108 second-feet, compared to 2,115 second-feet for 1955, and 2,355 second-feet for 1954.

The water was out of the East Highline Canal system in the Calipatria Division from Standard Check north from January 24 to 27, inclusive, for work on Nectarine Heading, and general inspection and repairs to structures in that area.

The operation and maintenance of East Highline Canal for 1956 required an expenditure of \$132,962, compared to \$101,781 for 1955, and \$88,938 for 1954.

**(c) East Highline No. 1 Side Main Canal:**

East Highline No. 1 Side Main Canal is approximately 3 miles in length, with 14 operational structures required for the delivery of water. The maximum daily diversion on this canal for 1956 was 78 second-feet, compared to 147 second-feet for 1955, and 102 second-feet for 1954. The operation and maintenance of the canal for 1956 required an expenditure of \$2,328, compared to \$6,682 for 1955, and \$7,914 for 1954.

**(d) Central Main Canal**

Central Main Canal is approximately 29 miles in length, with 78 operational structures required for the delivery of water to the lateral canals. The maximum daily diversion to Central Main Canal from the All-American Canal for 1956 was 1,135 second-feet, compared to 1,256 second-feet for 1955, and 1,220 second-feet for 1954.

The water was out of Central Main Canal from December 2 to 6, inclusive, for the removal of old Dahlia Check and for general inspection and repairs to structures.

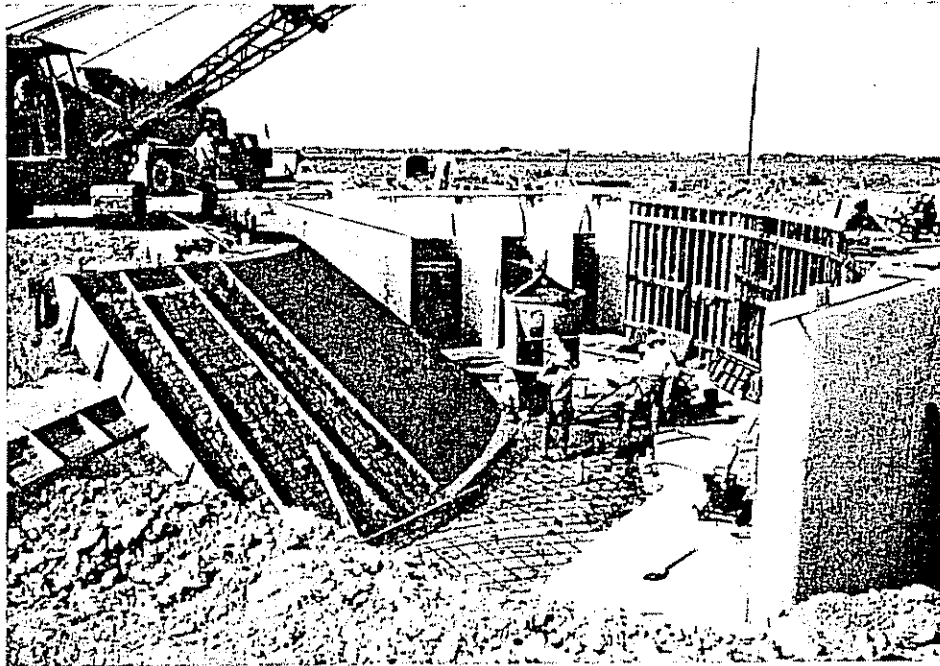
The operation and maintenance of Central Main Canal for 1956 required an expenditure of \$62,172, compared to \$70,168 for 1955, and \$64,820 for 1954.

**(e) West Side Main Canal:**

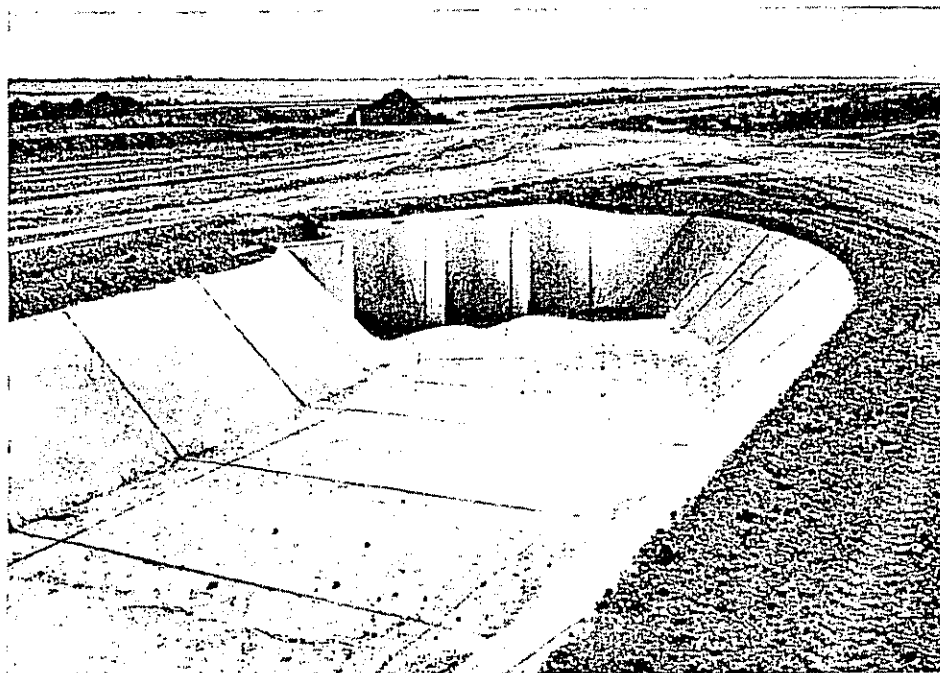
West Side Main Canal is approximately 45 miles in length, with 167 operational structures maintained for the delivery of water to the western part of the Calexico and Imperial Divisions and all of the Westmorland Division. The maximum daily diversion for water on West Side Main Canal for 1956 was 1,160 second-feet, compared to 1,197 second-feet for 1955, and 1,214 second-feet for 1954.

The water was out of West Side Main Canal from Fern Heading north from February 22 to 25, inclusive, and was out of the entire West Side Canal System from November 25 to 29, inclusive, for general inspection and repairs to structures.

The operation and maintenance of West Side Main Canal for 1956 required an expenditure of \$71,445, compared to \$80,916 for 1955, and \$60,720 for 1954.



Vail Supply Canal Heading from East Highline Canal—Pouring sloping wall inlet transition. Designed capacity of 310 cubic feet per second. Three 6 feet by 9 feet 9 inch radial gates are operated automatically with supervisory control.



Vail Supply Canal inlet transition to crossover structure to carry Vail Supply Canal under Nectarine Canal.

**(f) Vail Canal:**

Vail Canal is approximately 18 miles in length, with 93 operational structures maintained for the delivery of water to Vail Lateral Canals. The new Vail Supply Canal was completed and put into operation on July 16, 1956, and became a part of Vail Canal. The new extension being approximately 10 miles in length was constructed from East Highline Canal extending west to the existing Alamo River crossing and tying in with the existing Vail Canal. The construction of this extension provides for the delivery of water to the Vail System with all water from the All-American Canal. The Vail System serves the area west of Alamo River to Salton Sea in the Calipatria Division. The maximum daily diversion on Vail Canal from the Alamo River, from January through July 16, 1956, was 290 second-feet, and the maximum daily diversion from East Highline Canal, from July 16 through December, 1956, was 261 second-feet. The maximum daily diversion was 325 second-feet in 1955, and 339 second-feet in 1954.

The operation and maintenance of Vail Canal for 1956 required an expenditure of \$23,661, compared to \$23,573 for 1955, and \$23,504 for 1954.

**(g) Brush and Weed Control:**

Brush and weed control on main canals by burning for 1956 covered 7 miles, compared to 759 miles in 1955, and 97 miles in 1954. Labor, equipment, and material costs for burning an average 12-foot width in 1956 were \$246, compared to \$21,181 for 1955, and \$3,249 for 1954.

The use of chemicals on brush and weed control work on channels and right of way for 1956 covered 1,661 acre miles, compared to 1,204 acre miles for 1955, and 316 acre miles for 1954. Labor, equipment, and material costs for covering an average 12-foot width in 1956 were \$48,613, compared to \$33,215 for 1955, and \$9,547 for 1954. Three kinds of chemicals were used on weed and brush control work for the different types of growth. The type and stage of growth, and the season of the year applications are made, determine the kind of chemicals to be used.

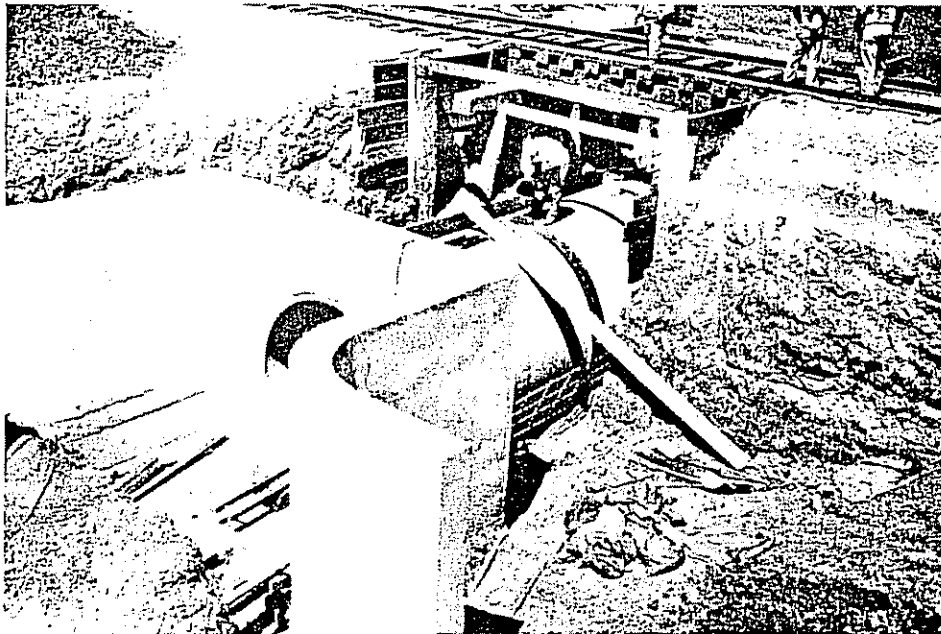
**(h) Moss Control:**

Work on the control of moss on the main canals for 1956 required an expenditure of \$2,227, compared to \$3,710 for 1955, and \$2,036 for 1954.

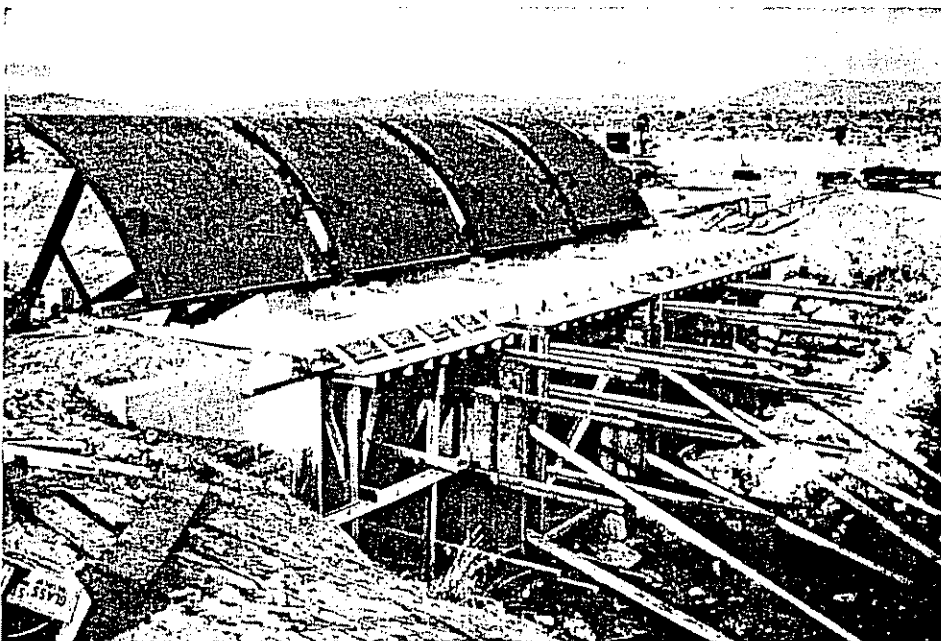
**2. LATERAL CANALS**

**(a) General Comments:**

The lateral canal system consists of 1,530 miles, the operation and maintenance of which is carried on by the 7 operating divisions. There are 11,197 structures on the lateral canal system, of which 5,956 are concrete, 930 are rubble, and 4,311 are wooden. Each year a certain per cent of the existing wooden structures are being replaced with con-



Installation of 96 inch Vibro-Cast Reinforced Concrete Pipe at Southern Pacific Railroad Crossing over Vail Supply Canal.



Reconstruction of weir type structure in the East Highline Canal at Nectarine Canal to a four radial gate structure which will be electric operated by Remote Control from the General Watermaster's Office at Imperial Headquarters. View of the walkway and form work after pouring.

crete structures. Minor repairs were made to 1,325 structures, and major repairs to 160 structures.

General maintenance of the lateral canals required 98 miles of cleaning by labor crews, 140 miles of cleaning by draglines, and 320 miles of cleaning by bucket-line dredges. The Brisco sloper was used to clean 350 miles, and 1,473 miles of canal banks and operational roads were graded in connection with maintenance operations.

#### **(b) Brush and Weed Control:**

Brush and weed control work by burning on the lateral canals in 1956 was 716 miles, compared to 3,221 miles for 1955, and 475 miles for 1954. Labor, material, and equipment costs on an average 12-foot width for 1956 were \$18,824, compared to \$72,957 for 1955, and \$12,100 for 1954.

Aromatic-oil spray in 1956 was applied on 275 miles, compared to 253 miles for 1955, and 835 miles for 1954. Labor, material, and equipment costs on an average 12-foot width for 1956 were \$12,069, compared to \$10,242 for 1955, and \$36,851 for 1954.

Brush and weed control by chemical spraying on channel and right of way in 1956 covered 4,839 acre miles, compared to 3,832 acre miles for 1955, and 2,896 acre miles for 1954. Labor, material, and equipment costs on an average 12-foot width for 1956 were \$145,236, compared to \$111,549 for 1955, and \$111,112 for 1954. The same methods of chemical control were used on the lateral canals as on the main canal system. The kind of chemical used is subject to the type of growth to be treated and the season of the year the application is made.

#### **(c) Moss Control:**

Moss control work on the lateral canal system for 1956 required an expenditure of \$62,668, compared to \$55,824 for 1955, and \$62,869 for 1954. Four methods of control were used on moss work: Moss plow, burning, chemical, and hand labor. The expenditure for each type of operation was moss plow \$18,004, burning \$1,021, chemical \$37,659, and hand labor \$5,984.

## **B. Construction:**

### **1. MAIN CANALS**

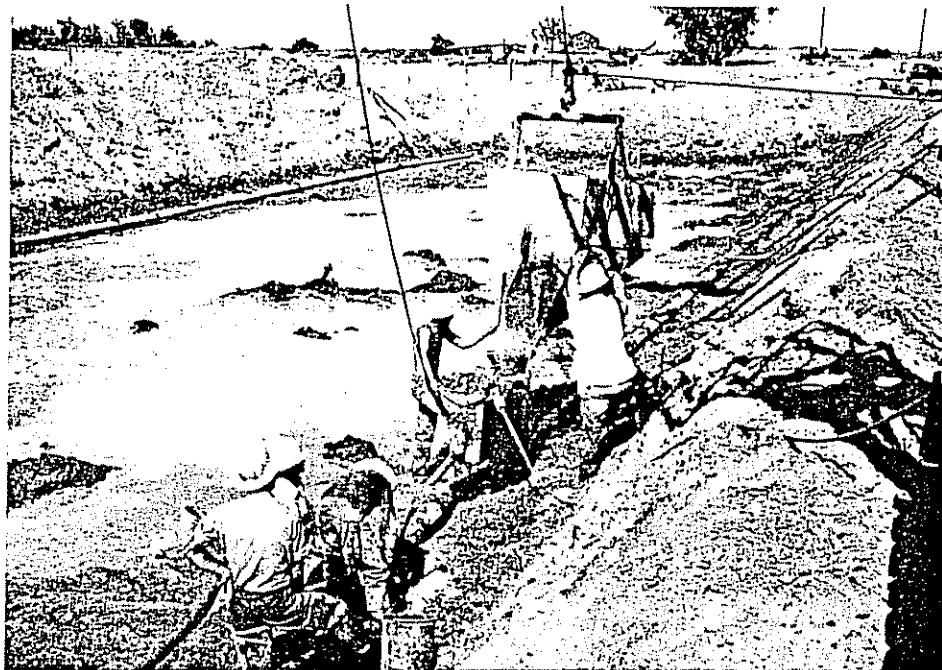
#### **(a) General Comments:**

Construction work on main canals in 1956 required an expenditure of \$648,402, compared to \$368,497 for 1955, and \$396,286 for 1954.

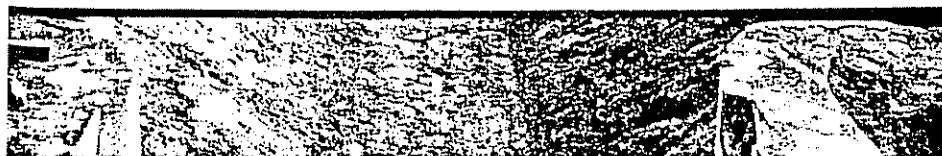
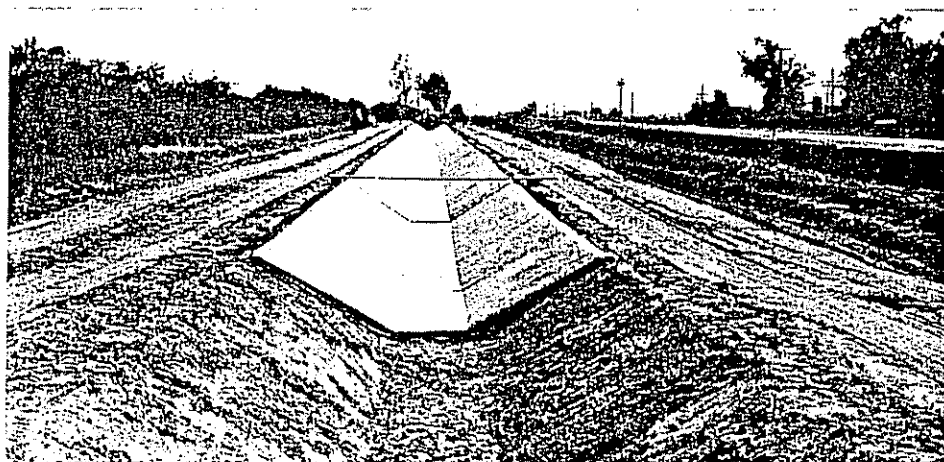
#### **(b) East Highline Canal:**

Construction work on East Highline Canal for 1956 required an expenditure of \$11,095, compared to \$68,249 for 1955, and \$199,916 for 1954.

The major items of construction on East Highline Canal consisted



Rositas Supply Canal for Alamo River crossing—Installation of well points.



Portion of concrete lined section of Evergreen Canal south of El Centro Main Street—designed for 40 c.f.s. capacity—total length approximately .50 of a mile.

of replacement of 3 deliveries and Myrtle and Nectarine headings, at a cost of \$8,649. Concrete pipe for the Oasis and Orient headings was ordered and delivered in 1956, at a cost of \$2,446. These two headings are to be installed in 1957 during the general cutout on the East Highline Canal System in January.

**(c) Central Main Canal:**

The expenditure on construction and reconstruction work on Central Main Canal for 1956 was \$59,227, compared to \$60,781 for 1955, and \$166,723 for 1954.

The major construction program, which was approved by the Board of Directors, and work started in 1953, on the reconstruction of Central Main Canal from Dahlia Heading extending north to U. S. Highway 80, was completed in 1956, with an expenditure of \$56,830 during the year.

In addition to the completion of the major program on the Central Main Canal from Dahlia Heading to U. S. Highway 80, 2 deliveries and Date Heading were replaced at a cost of \$2,397.

**(d) West Side Main Canal:**

The construction work on West Side Main Canal for 1956 required an expenditure of \$8,030, compared to \$26,729 for 1955, and \$20,073 for 1954.

The major items consisted of the replacement of 2 checks, Trifolium Lateral 14 and Trifolium Lateral 5, the replacement of 2 bridges, and a drop structure below Trifolium Lateral 1 Heading, at a cost of \$8,030.

**(e) Vail Canal:**

The Board of Directors on July 5, 1955, approved plans for construction of the Vail Canal Project. This was completed in 1956, with an expenditure of \$319,018 in 1956, and \$186,723 in 1955, making the cost of the project, \$505,741. The construction of the new Vail Supply Canal from East Highline Canal, extending west to the Vail Siphon under the Alamo River, ties in with the existing Vail Canal and furnishes water to an area in the Calipatria Division, which prior to the construction of the new canal received the major portion of its water from the Alamo River.

**(f) Rositas Supply Canal:**

The Board of Directors on July 5, 1955, approved plans for the Rositas Supply Canal Project, and during 1956 an expenditure of \$252,305 was made, and by December 31, 1956, was approximately 23.5 per cent complete.

Rositas Supply Canal with turnout structure in the west bank of East Highline Canal will parallel Palmetto Lateral Canal to Alamo River, approximately 9.50 miles, and upon completion will furnish water to approximately 21,500 acres in the Mesquite Lake area, which now receives water from the Alamo River. The construction of the new canal requires the relocation of Holtville Drain No. 10, part of Pear Drain No. 2, the entire Palmetto Drain, and a portion of Barbara Worth Drain.

## 2. LATERAL CANALS

The construction program on replacement of existing wooden checks and delivery gates on the lateral canal system, as they become inoperative, required an expenditure of \$330,145 in 1956, compared to \$288,646 for 1955, and \$267,917 for 1954.

There were 25 new concrete deliveries and 1 new wooden delivery installed, 415 wooden deliveries replaced with concrete and 5 replaced with wood. There were 7 new concrete checks installed, 220 wooden checks replaced with concrete and 4 replaced with wood. Five bridges and 6 wasteways were replaced, 74 new concrete control drop structures installed, 7 wooden drop structures replaced with concrete and 1 replaced with wood.

During the year, 770 structures were installed, of which 107 were additions to the system, and 663 were replacements.

In addition to the above, 82 structures were installed on the system, requiring expenditure of \$88,604. The major items were: 73 control drops at a cost of \$68,972, and 6 wasteways at a cost of \$5,011. The "T" Lateral Canal and "X" Lateral Drain crossing cost \$2,856, and that portion of the "Z" Lateral Canal, chargeable to the District and completed in 1956, cost \$2,914.

One lateral canal crossing was replaced under the Southern Pacific railroad main line at an expenditure of \$8,851.

In connection with betterment of District's and landowners' facilities, District's Resolution No. 254-55, supporting Regulation No. 24 of Rules and Regulations Governing Charges for Delivery and Use of Water, provides for the rearrangement or exclusion of irrigation lateral termini, to reduce or eliminate maintenance costs. There was a recorded agreement to cover each individual job with the District's participation being \$15,155, covering 4.01 miles. The District's participation in this 4.01 miles resulted in the decrease of 3.15 miles of lateral canals to be operated and maintained by the District.

To provide irrigation water to approximately 747 acres of land in the Calipatria Division, 1.75 miles of concrete-lined canal, with a capacity of 25 second-feet, were constructed, to be known as "Z" Lateral Canal.

In connection with recorded agreements between the landowners and the District, this canal was constructed on a participation basis, with the District to operate and maintain as a part of the division lateral canal system.

Private contractors installed 130.10 miles of private concrete-lined ditches for the landowners during 1956, compared to 105.54 miles in 1955, and 50.51 miles in 1954, making a total of 431.20 miles of concrete-lined ditches installed to date. The District furnished the engineering required prior to installation of the ditches. There were 321 field investigations made in 1956 in connection with the concrete-lined head ditches, compared to 297 in 1955, and 157 in 1954.

V.

## DRAINAGE SYSTEM

## **A. Operation and Maintenance:**

### **1. MAIN DRAINS**

#### **(a) General Comments:**

The District's program on the development of a drainage system contemplates the operation and maintenance of a drain outlet to each Governmental subdivision of approximately 160 acres. The main drain system is distributed over the area and serves as a transportation channel for the lateral drain system and drain outlets for the area in which they are located. The main drain system consists of 557 miles of channels 7 to 10 feet in depth.

The expenditure for the operation and maintenance of the main drain system in 1956 was \$311,904, compared to \$344,293 for 1955, and \$328,339 for 1954. Of this expenditure in 1956, \$191,982 was for maintenance of main drains; \$34,399 for maintenance of main drain structures; \$28,339 for maintenance of drain pumps; \$18,976 for maintenance of the Alamo and New Rivers, which serve as drainage outlets for the drainage system; and \$4,513 for salinity investigations.

General maintenance on main drains included 17,747 man-hours on general cleaning of drains with labor crews. There were 97 miles cleaned with draglines, and motor graders and bulldozers were used to grade 93 miles on main-drain banks and operational roads.

#### **(b) Brush and Weed Control:**

Brush and weed control work on the main drain system was carried on by burning and chemical control.

Burning operations in 1956 covered 689 miles, compared to 1,540 miles for 1955, and 1,504 miles for 1954. Labor, material, and equipment costs on an average 12-foot width in 1956 were \$16,914, as compared to \$31,527 for 1955, and \$33,021 for 1954.

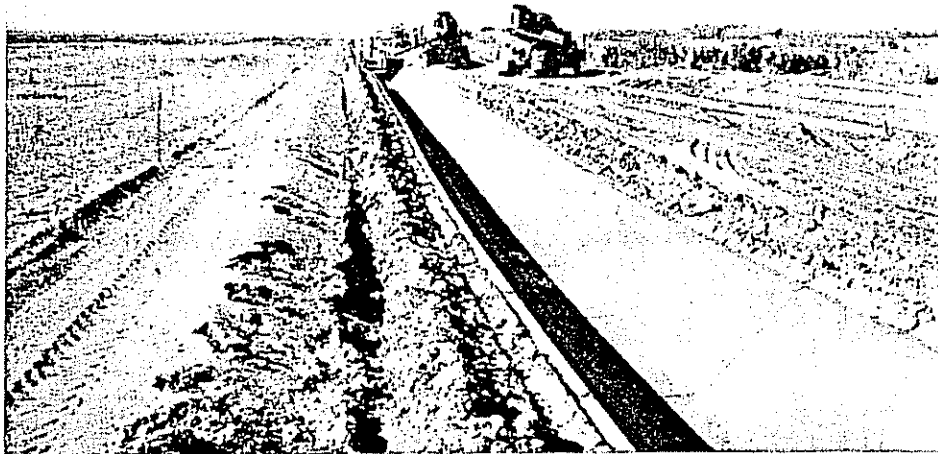
There was no aromatic-oil spraying during 1956 as it was found that the chemicals were more economical and furnished control for a longer period.

Chemical control in 1956 covered 787 acre miles, compared to 538 acre miles for 1955. Labor, material and equipment costs on an average 12-foot width in 1956 were \$27,434, as compared to \$23,574 for 1955.

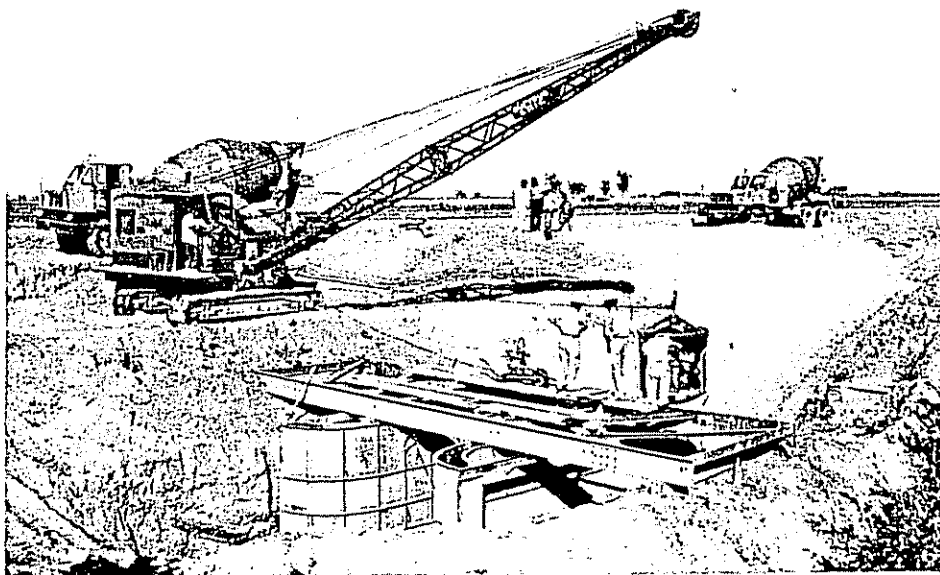
Three kinds of chemical control were used on the main drains; the type and stage of the growth and the season of the year applications are made determine the kind of chemical to be used.

#### **(c) Moss Control:**

Moss control work on the main drain system in 1956 required an expenditure of \$60,144, compared to \$53,170 for 1955, and \$42,268 for 1954. Of this cost for 1956, there were \$53,966 for chemical control and \$6,178 for hand labor.



"Z" Lateral Canal—Concrete lined approximately one and three-quarters miles with a capacity of 25 cubic feet per second, under joint participation between landowner and the District.



Mesquite Lateral Drain above Alamo River Outlet—6 feet by 10 feet concrete drop structure to control erosion.

## **2. LATERAL DRAINS**

### **(a) General Comments:**

The District's lateral drain system is designed to provide outlets for open or tile drains for each Governmental subdivision of approximately 160 acres. The lateral drain system is operated and maintained by the seven operating divisions, and consists of 809 miles. There are 494 structures located throughout the lateral drain system, of which 314 are concrete, 44 rubble, 88 wooden, and 48 a combination of wood and other material.

General maintenance on the lateral drains included cleaning 43 miles with labor crews, 126 miles with draglines, and 71 miles with bucket-line dredges. There were 56 miles of drain banks cleaned with the Brisco sloper, and motor graders and bulldozers were used to grade 243 miles on lateral drain banks and operational roads.

### **(b) Brush and Weed Control:**

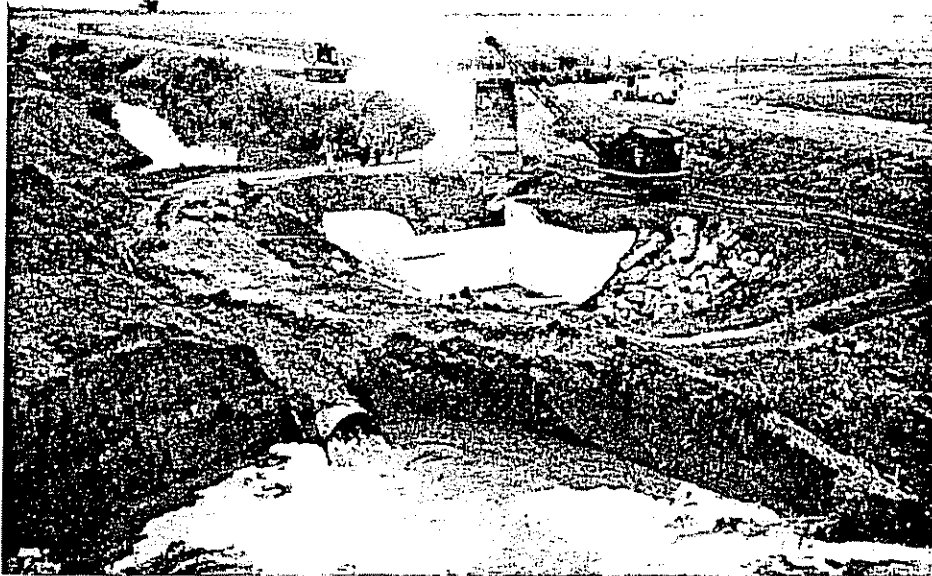
Brush and Weed control work on the lateral drain system in 1956 consisted of burning 751 miles of lateral drains, compared to 979 miles for 1955, and 693 miles for 1954. Labor, material, and equipment costs on an average 12-foot width in 1956 were \$20,850, compared to \$18,349 for 1955, and \$15,375 for 1954.

Aromatic-oil spray was used in places where the chemicals could not be used, and in 1956, 10 miles of drains were sprayed, as compared to 61 miles for 1955, and 317 miles for 1954. Labor, material, and equipment costs on an average 12-foot width in 1956 were \$2,280, compared to \$2,815 for 1955, and \$12,355 for 1954.

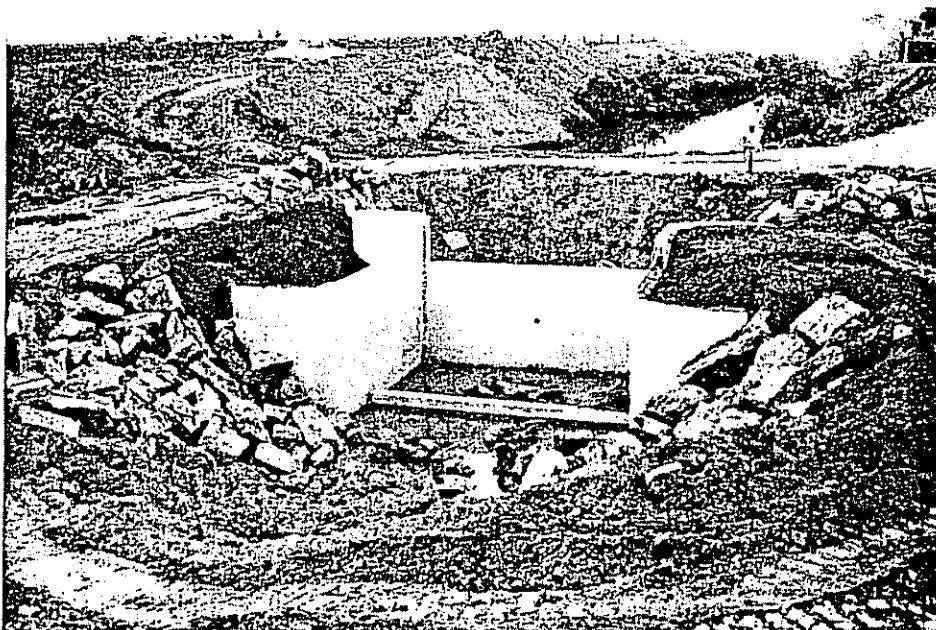
Chemical control work on the channels for 1956 covered 1,427 acre miles, compared to 1,153 acre miles for 1955, and 1,120 acre miles for 1954. Labor, material, and equipment costs on an average 12-foot width in 1956 were \$64,560, compared to \$35,401 for 1955, and \$34,430 for 1954.

### **(c) Moss Control:**

Moss control work on the lateral drain system for 1956 required an expenditure of \$7,197, compared to \$5,765 for 1955, and \$2,195 for 1954. Three methods of control were used on moss work: Moss plow, chemical and hand labor. The expenditure for each type of operation was moss plow \$1,241, chemical \$5,771, and hand labor \$185.



Holtville Main Drain Drop No. 10—Above outlet into Alamo River 12 feet deep and 20 feet wide concrete drop structure and showing the 60-inch temporary bypass pipe for diverting water around structure during construction.



Holtville Main Drain Drop No. 10—Above outlet into Alamo River—12 feet deep and 20 feet wide concrete drop structure.

## B. Construction

### 1. MAIN AND LATERAL DRAINS

The total expenditure on construction work on the main and lateral drain system for 1956 was \$392,709, compared to \$347,943 for 1955, and \$481,704 for 1954. The distribution of the total cost for the year is as follows: \$50,706 for engineering on District drains; \$103,166 for engineering on private drains, the major portion of which was in connection with farm-tile installations; \$14,312 for acquisition of right of way; \$23,368 for equipment and facilities; \$201,157 for construction costs, which includes \$3,083 for railroad crossings; \$3,036 for State Highway crossings; and \$9,528 for County road crossings.

There were .35 of a mile of main drains and 4.19 miles of lateral drains constructed during the year. To provide a more efficient drainage system, there were 8.63 miles of lateral drains reconstructed and 4.78 miles of lateral drains deepened.

In those instances where it was not practical to provide gravity outlets for farm-tile drains, the District installed seven tile effluent sump-pump outlets in 1956, making a total of 83 sump pumps in operation on December 31, 1956.

In connection with agreements with the Division of Highways on reconstruction of highway structures, the District installed one drain crossing on State Route 201.

There were three drain crossings replaced under the Sandia Branch of the Southern Pacific railroad.

Private contractors installed 519.36 miles of private farm tile for the landowners during 1956, on which the District co-operated with the landowners by supplying the engineering required and inspection of the material and workmanship during the installation.

The total mileage of drains constructed during 1956 is as follows:

Miles of open drains constructed by Imperial Irrigation District	4.54
Miles of open drains reconstructed by Imperial Irrigation District	8.63
Miles of private drains constructed by contractors	1.60
Miles of private drains cleaned by contractors	41.83
Miles of farm-tile drains constructed by contractors	519.36

The total mileage of drains as of December 31, 1956, is as follows:

Miles of District main drains	556.63
Miles of District lateral drains	808.80
Miles of farm-tile drains	5,767.62

VI.

INVENTORY OF AREAS RECEIVING  
WATER SERVICE DURING 1956

## A. GENERAL COMMENTS:

The annual inventory of areas receiving water service, including crop plantings and other data pertaining to the area served by the District, was issued in December, 1956. The gross area in crops during 1956 was 752,207, which is a decrease of 17,461 acres from the 1955 acreage of 769,668. However, the net area irrigated increased from 474,557 acres in 1955 to 482,374 acres in 1956.

The following tabulation, which comprises the third annual inventory of areas receiving water service, lists the many diversified crops that were under cultivation in the irrigated area served by Imperial Irrigation District during 1956. Also, shown is a summary of the area served and a summary of the present undeveloped area:

## B. CROP SURVEYS:

FIELD CROPS—	March	June	Sept.	Dec.
Alfalfa	173,981	169,742	122,054	159,269
Alfalfa (Seed)		1,373	1,656	
Atlas Sargo		34		
Barley	79,873	11,688	335	39,318
Bermuda	655	551	495	492
Bermuda (Seed)			30	
Blue Panicum Grass			8	
Broom Corn		11	10	
Cattails and Millet	260	500	500	500
Clover	363	796	115	413
Cotton	3,153	44,174	45,311	21,796
Field Corn	400	797	353	
Flax	40,448	34,143	17	14,112
Flowers (Mixed)	36	1	4	12
Grain (Mixed)	3			
Hegari		108	608	
Hubam Clover		444		
Milo	157	5,927	9,250	255
Oats	1,778	594		909
Pasture	393	221	296	248
Peanuts			10	10
Red Top Cane	50			
Rice			60	60
Sesbania		1,944	1,879	27
Sorghum		7	159	
Soy Beans		620	1,015	
Sudan Grass	152	2,188	4,454	273
Sugar Beets	40,359	18,637	4,195	46,985
Sugar Cane	5	350	478	
Water Grass	80			
Wheat	1,282	55		352
Wheat Grass	2			
<b>TOTALS</b>	<b>343,430</b>	<b>294,905</b>	<b>193,292</b>	<b>285,031</b>

GARDEN CROPS—	March	June	Sept.	Dec.
Banana Squash	65			
Black-Eyed Peas	1	5	68	
Broccoli			272	519
Broccoli (Seed)	43			
Cabbage	237		579	1,396
Cantaloupes	7,252	5,812	248	1,638
Carrots	3,387	391	1,520	6,354
Cauliflower	4			5
Celery				2
Chicory				1
Cucumbers			277	8
Endive				75
Fava Beans	30			
Garden Peas	40			
Garlic	539	366	40	370
Honeyball Melons	295	365		
Horse Beans	48		63	83
Lettuce	3,444	20	9,688	33,321
Lettuce (Seed)	158	378		
Melons (Mixed)	6	6		
Mustard				114
Okra		37	25	
Okra (Seed)			10	10
Onions	834	235	150	1,193
Onions (Seed)	39	210		38
Parsley				1
Parsnips				5
Peas	68			
Persian Melons	94	67		
Potatoes	311			
Romaine				142
Safflower				80
Spinach				2
Squash	848	224	309	1,241
Stock	51			14
Sugar Peas	5			
Sweet Anise				1
Sweet Potatoes	11	31	20	15
Swiss Chard		8		5
Swiss Chard (Seed)	8			
Table Beets	37	5		20
Table Beets (Seed)				28
Tomatoes	7,667	5,702	2,134	3,317
Turnips				4
Vegetables (Mixed)	6	3		20
Water Lilies	6	6	6	6
Watermelons	5,356	4,827		1,578
TOTALS	30,890	18,698	15,409	51,606

PERMANENT CROPS—

	March	June	Sept.	Dec.
Asparagus .....	571	642	642	642
Citrus (Mixed) .....	108	118	114	118
Dates .....	115	114	115	123
Grapefruit .....	872	868	867	930
Grapes .....	311	311	213	176
Lemons .....	263	281	281	289
Lemon Seedlings .....	3	6	8	8
Nursery .....	5	5		5
Nursery Lemons .....	1	1	1	
Nursery Stock .....	1	1		1
Oranges .....	345	340	313	309
Pecans .....	114	110	107	100
Roses (Root Stock) .....	1	1	1	1
Tangerines .....	230	220	218	232
TOTALS .....	2,940	3,018	2,880	2,934
GRAND TOTALS .....	377,260	316,621	211,581	399,571

Average Number of Farms Reported .....	5,945
Average Number of Owner-Operated (59.09%) .....	3,513
Average Number of Tenant-Operated (40.91%) .....	2,432
Average Area—Acres .....	89.87

### C. SUMMARY OF AREAS SERVED:

#### Gross Area In:

Field Crops .....	666,030
Garden Crops .....	83,057
Permanent Crops .....	3,120
<hr/>	
Total Gross Area in Crops .....	752,207
Less Duplicate Areas .....	269,833
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Net Area Irrigated .....	482,374
Area of Farms in Feed Lots, Homes, Corrals, Etc. ....	12,635
Area in Cities, Towns, Airports .....	9,748
Area Being Reclaimed .....	4,161
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Total Area Receiving Water .....	508,918
Area in Rivers, Canals, Drains, Roads, Railroads .....	59,305
Area Below —230 Salton Sea Reserve Boundary and Area Covered by Salton Sea .....	42,000
Undeveloped Area of Imperial, West Mesa, East Mesa, and Pilot Knob Mesa .....	295,336
<hr/>	
Gross Area of District .....	905,559

VII.

POWER DIVISION

## A. GENERAL COMMENTS:

The service area of the District including the Salton Sea is 6,614 square miles, of which there are now 1,331 square miles being served or lying within one-half mile of the District's distribution lines. Much of this service area is unpopulated desert which accounts for the small portion that receives service; however, it is estimated that 99 per cent of all the people residing within the area receive service.

At the close of the year, the District was providing electric service to an average of 30,314 customers, as compared to 18,756 customers in 1946. In order that both present and future customers receive adequate service the District has provided generation, transmission, and distribution facilities from funds derived from the issuance of Power Revenue Bonds.

The latest of these power projects known as the "1955 Power Development Project" was authorized in June, 1955, and is financed from accumulated Power Revenue Funds, Prior Years, Power Reserve Funds and the Special Electric Plant Construction Fund. The main feature of this project will be Unit No. 3 of the District's El Centro Steam-Electric Station which will provide an additional 44,000 kilowatts to the District's generating facilities.

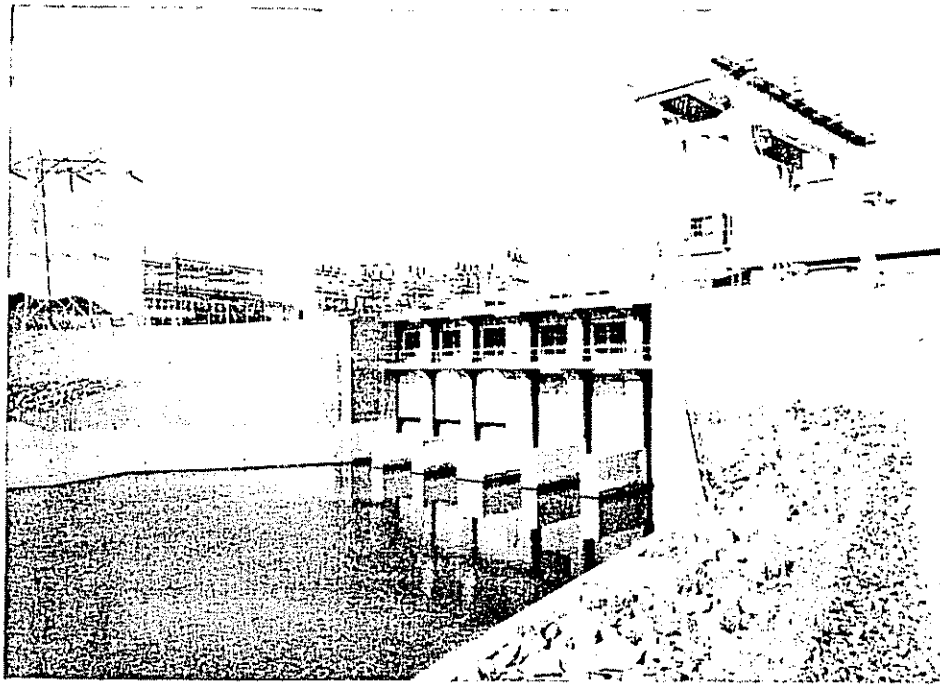
The District has, also, entered into an agreement with the California Electric Power Company and the Arizona Public Service Company, thereby forming a power pool which will jointly supply electric power to each of the three contracting agencies. Under the provisions of the agreement an 80,000-kilowatt generating unit will be constructed by California Electric Power Company on a site near Yuma, Arizona, starting in 1957. A second unit of similar size will be constructed by Arizona Public Service Company on the same site at a later date. The third unit will be constructed in Imperial Valley by Imperial Irrigation District when electric power requirements of the three agencies reach a point where the additional facility is required.

## B. OPERATION AND MAINTENANCE:

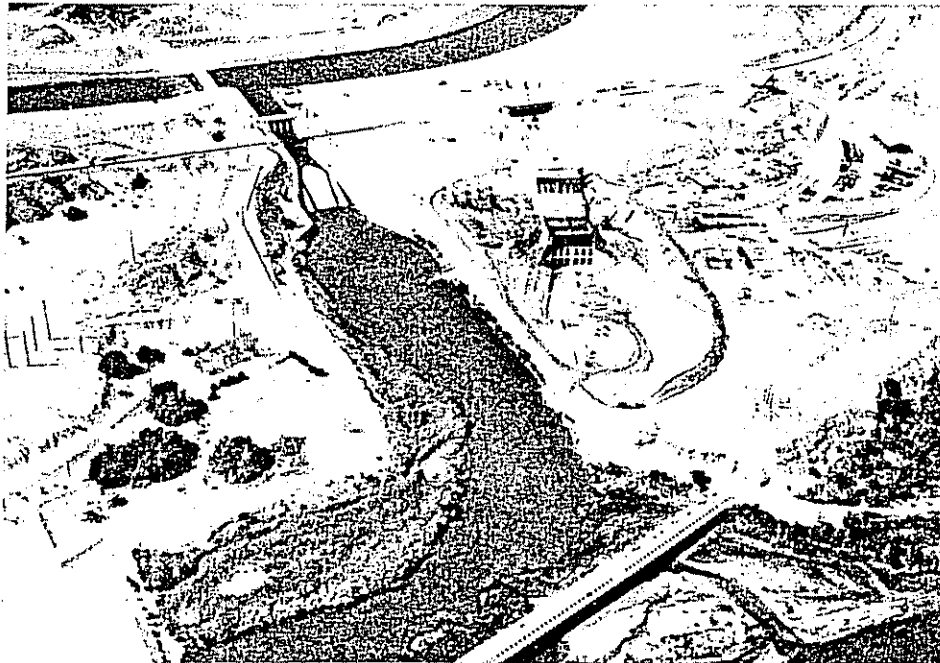
Operation and maintenance cost of the District's power system in 1956 was \$3,603,492, an increase of \$331,223 over 1955. Of this increased cost \$300,000 was for the El Centro Steam-Electric Station.

Low runoff in the Colorado River drainage basin resulted in reduced power generation by plants on the Colorado River from which power is supplied to the District under contracts held with the United States. As a result of this curtailment of power, the District increased its operation at the El Centro Steam-Electric Station to meet the increased demand.

Generation costs at the District's hydro plants on the All-American Canal amounted to \$81,839 in 1956, compared to \$94,276 for 1955. This reduction in costs was due to a reduction in maintenance costs in 1956, as operating costs for the two years were almost identical. Operation and maintenance cost at the Brawley Diesel Plant increased \$26,103 in 1956 with \$16,000 of the increase chargeable to operation and \$10,000 chargeable to maintenance. Fuel costs at the El Centro Steam-Electric Station accounted for \$285,000 of the increased operating costs, and additional labor costs accounted for \$15,000 of the increase. Maintenance costs for this station increased \$4,000 in 1956.



Pilot Knob Hydro Plant, downstream face of powerhouse. 110 ton Gantry on roof, 15 ton Gantry on intake structure.



Aerial view of construction work in progress at Pilot Knob Hydro Plant as of April 5, 1956.

Cost of purchased power in 1956 was \$654,937, compared to \$655,094 for 1955. This amount is still greatly reduced when compared to the 1954 expenditure of \$762,018. However, low runoff conditions in the Colorado River drainage basin have resulted in greatly reduced power generation on the River, thereby reducing the amount of power available to the District under its contract with the United States. The expense of operation and maintenance of the District power transmission increased \$31,464 in 1956, of this amount \$12,874 resulted from increased operating costs and \$18,590 resulted from added maintenance charges. Distribution system costs were reduced \$8,326 in 1956. This reduction is the result of operation costs decreasing \$12,154, while maintenance costs increased \$3,828. Customer accounting and collection cost increased \$10,094 in 1956, sales promotion increased \$855, and administrative and general cost increased \$16,372.

In accordance with the District's operating procedure, each generating unit is taken out of service at some time during the year and disassembled for inspection. At that time, maintenance or replacement of parts is accomplished thereby more nearly assuring trouble-free operation for the ensuing 12-month period. In accordance with this procedure, all generation units were inspected during the year and routine preventive maintenance performed.

During the year, 3,557 meters were tested in the meter shop by District personnel and 198 tested in the field. The transformer shop re-wound 21 distribution transformers having a capacity of 84 kva, and tested, painted, and reconditioned 912 distribution transformers.

## C. CONSTRUCTION AND IMPROVEMENTS:

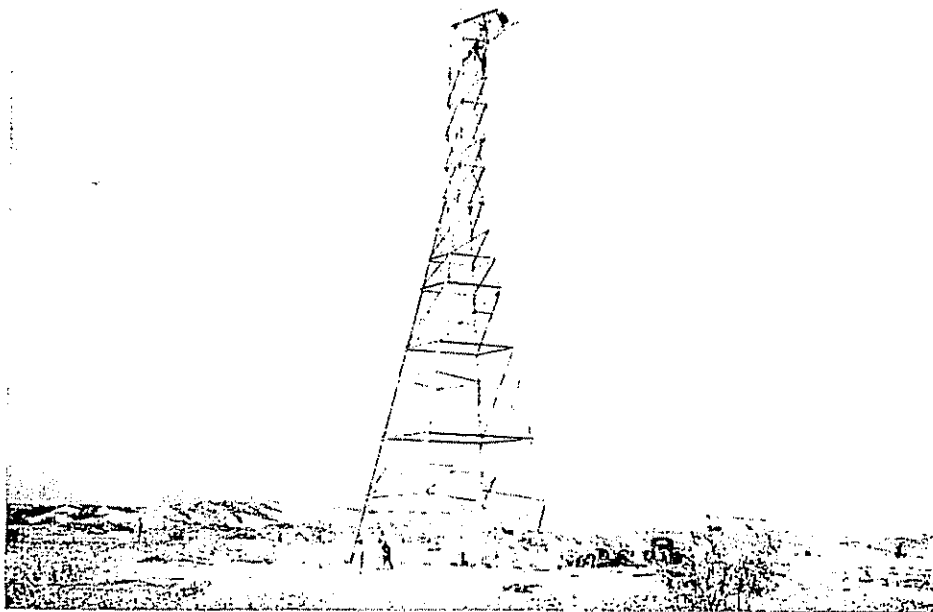
### 1. 1953 Power Development Project

The 1953 Power Development Project provided for the following:

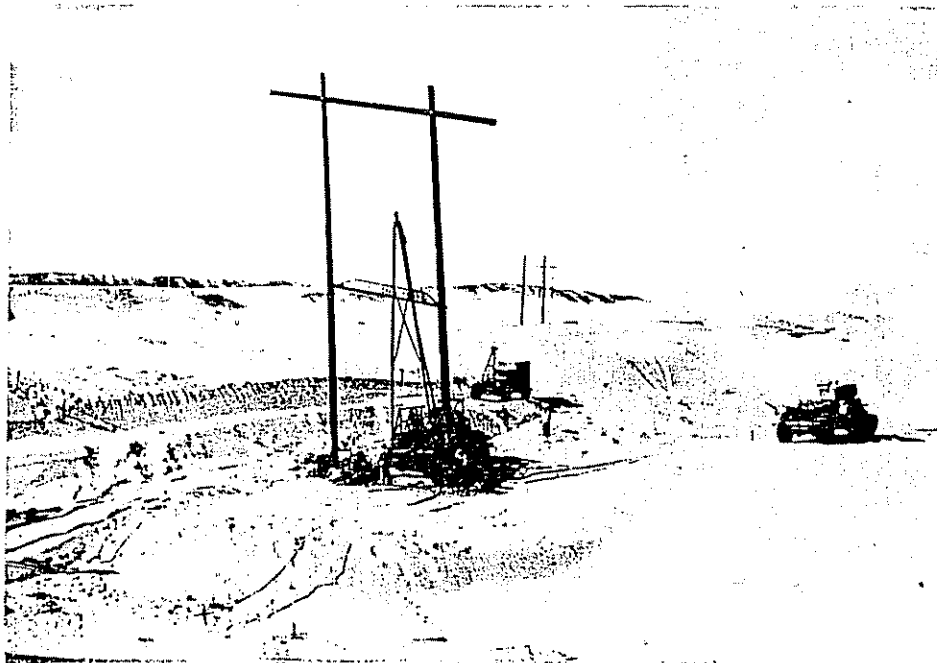
A. Preliminary Expense .....	\$ 70,000
B. Generation Facilities .....	
1. Pilot Knob Hydro Plant .....	6,440,890
C. Transmission Facilities .....	
1. Pilot Knob Substation .....	\$680,090
2. Transmission Line—Pilot Knob to Drop No. 4 .....	352,000
3. Transmission Line—Pilot Knob to Knob .....	88,270
4. Drop No. 4 Substation Additions .....	30,000
	<hr/>
	1,150,360
D. Distribution Facilities .....	
1. Miscellaneous Additions .....	1,510,750
	<hr/>
	\$ 9,172,000
Interest During Construction .....	828,000
	<hr/>
	\$10,000,000

At the end of the year work on the Pilot Knob Hydro Plant, which will add 33,000 kilowatts to the District's generation facilities, was nearing completion. The actual date of completion was expected to be in the latter part of January, 1957.

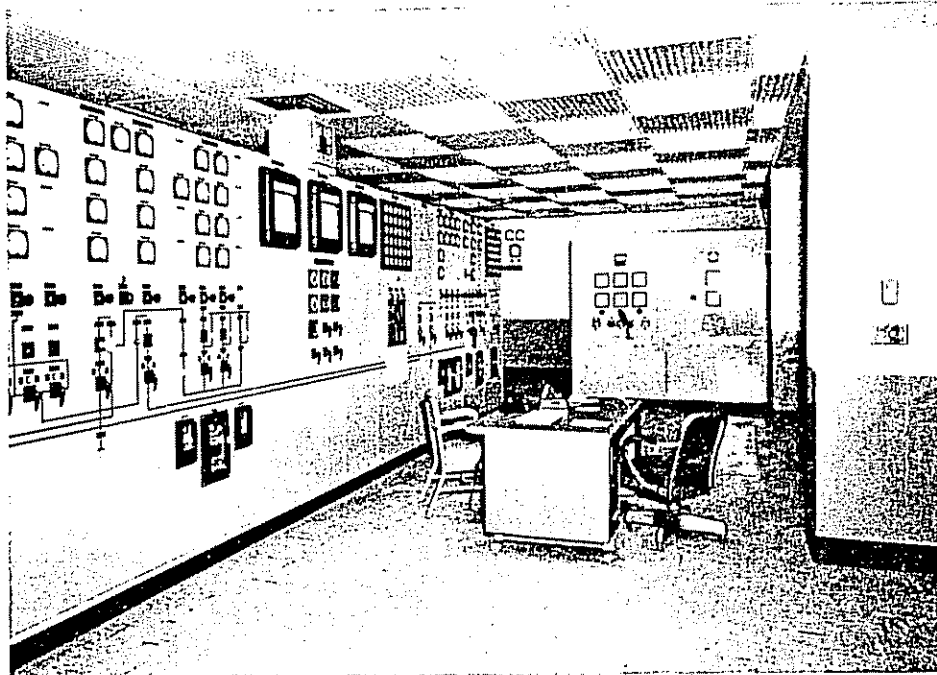
In the transmission facilities, completion of the Pilot Knob Substation was expected to coincide with date of completion of the Hydro Plant.



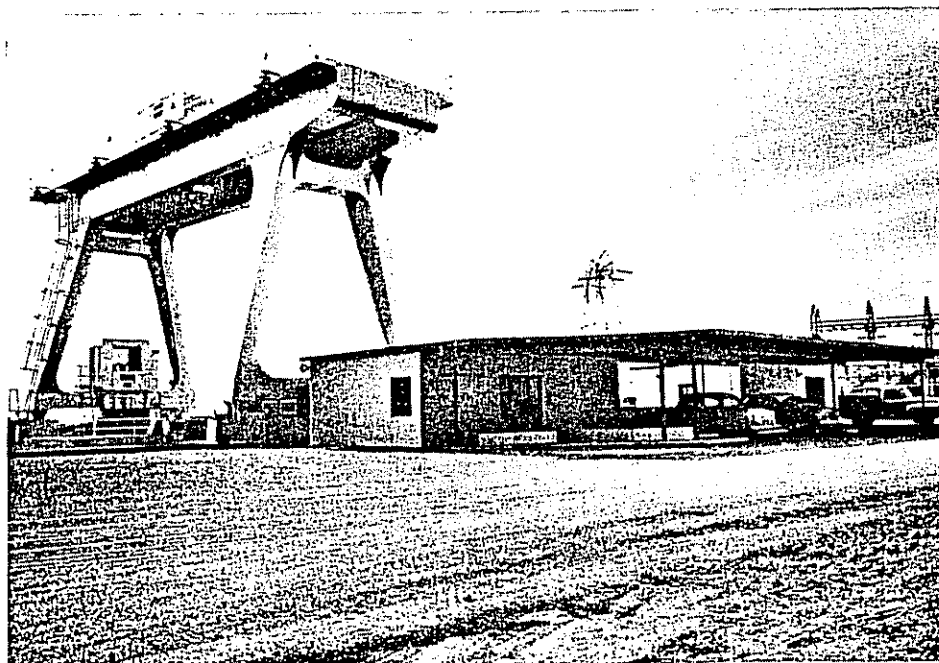
Erection of steel tower on transmission line from Pilot Knob Substation to Knob Substation.



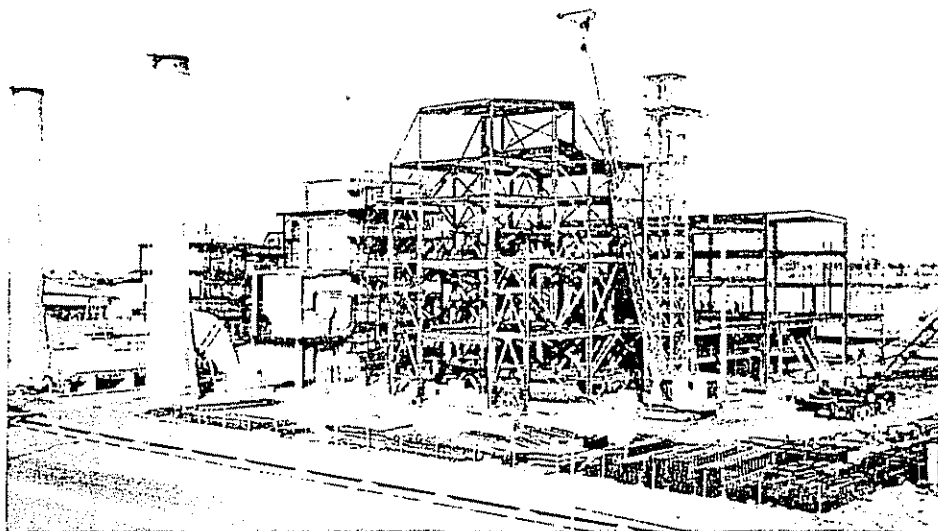
Erecting structure in sand hills for Pilot Knob Drop No. 4 transmission line.



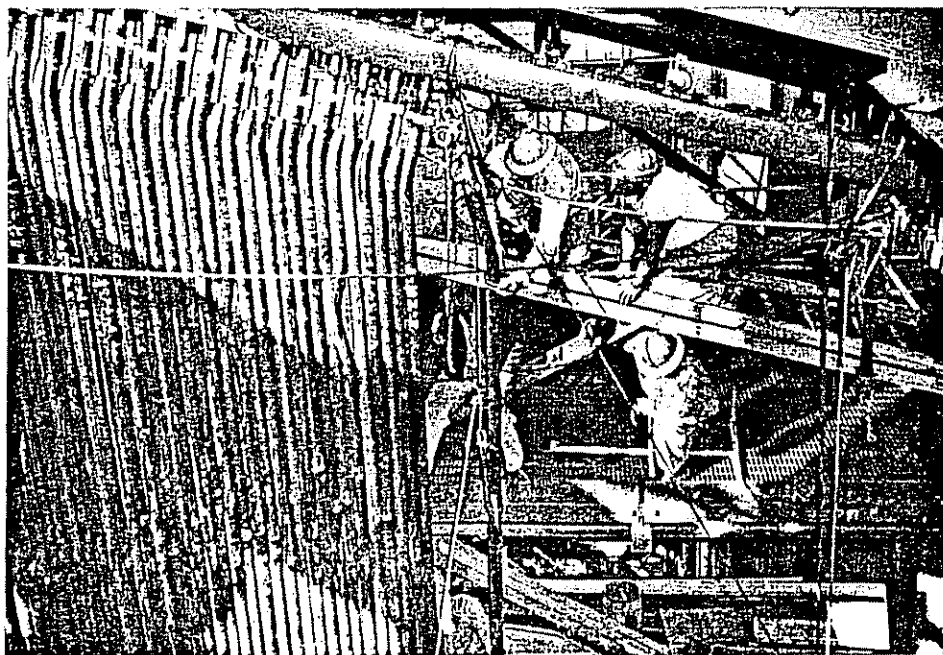
Pilot Knob Hydro Plant powerhouse. Duplex control board and actuator cabinet for Unit No. 1.



General view of Pilot Knob Hydro Plant showing main entrance, ramada, and machine shop.



Erecting boiler support structural steel, El Centro Steam Station, Unit No. 3.



El Centro Steam Station, Unit No. 3. Installing furnace water wall tubes.

The transmission line from Pilot Knob to Drop No. 4 and the Drop No. 4 Substation addition were completed. The transmission line from Pilot Knob to Knob was scheduled for completion in February, 1957.

All miscellaneous additions to distribution facilities scheduled under this project were expected to be completed by March 1, 1957.

## **2. 1955 Power Development Project**

The 1955 Power Development Project which is being financed from funds on hand in the District's Special Electric Plant Construction Fund, the Power Reserve Fund, and the Power Revenue Fund, Prior Years, has as its main feature Addition No. 3 to the El Centro Steam-Electric Station. This unit when completed will add 44,000 kilowatts of generating capacity to the District's electric system. Ground was broken on February 15, 1956, for construction of this plant which is scheduled for completion by midsummer of 1957.

In June, 1955, the District was informed by the Bureau of Reclamation that power furnished from Davis Dam would be cut more than two-thirds, or from 30,000 kilowatts to less than 10,000 kilowatts, because of a shortage of water in Lake Mead. This reduction, and the fact that the demand on the District's system has increased at a rate in excess of all previous estimates, made it necessary for the District to plan and begin construction of Unit No. 3 to the El Centro Steam-Electric Station at once.

## **3. Additions and Betterments from Revenue Funds**

Additions and Betterments paid for from current revenue funds during 1956 amounted to \$1,793,306. These expenditures are distributed among the various items of plant as follows: Generation facilities, \$808; transmission facilities, \$51,720; distribution facilities, \$823,988; general plant, \$44,436; engineering and superintendence, \$52,371; revenue expenditures in connection with the 1953 Power Project, \$223,113; and revenue expenditures in connection with the 1955 Power Project, \$598,870.

Retirements from electric plant amounted to \$133,114 during 1956. Material returned to stock for reissue was valued at \$64,754, and material sold for salvage amounted to \$19,594.

During the year, 1,249 distribution transformers equaling 20,744 kva were added to the system bringing the number of distribution transformers in the system at the end of the year to 13,782 with a capacity of 217,927 kva. There were 56 substations in service at the end of the year requiring 163 power transformers having a capacity of 510,599 kva. During the year there were 1,923 meters added to the system bringing the number for the system to 32,741.

## **D. POWER SALES**

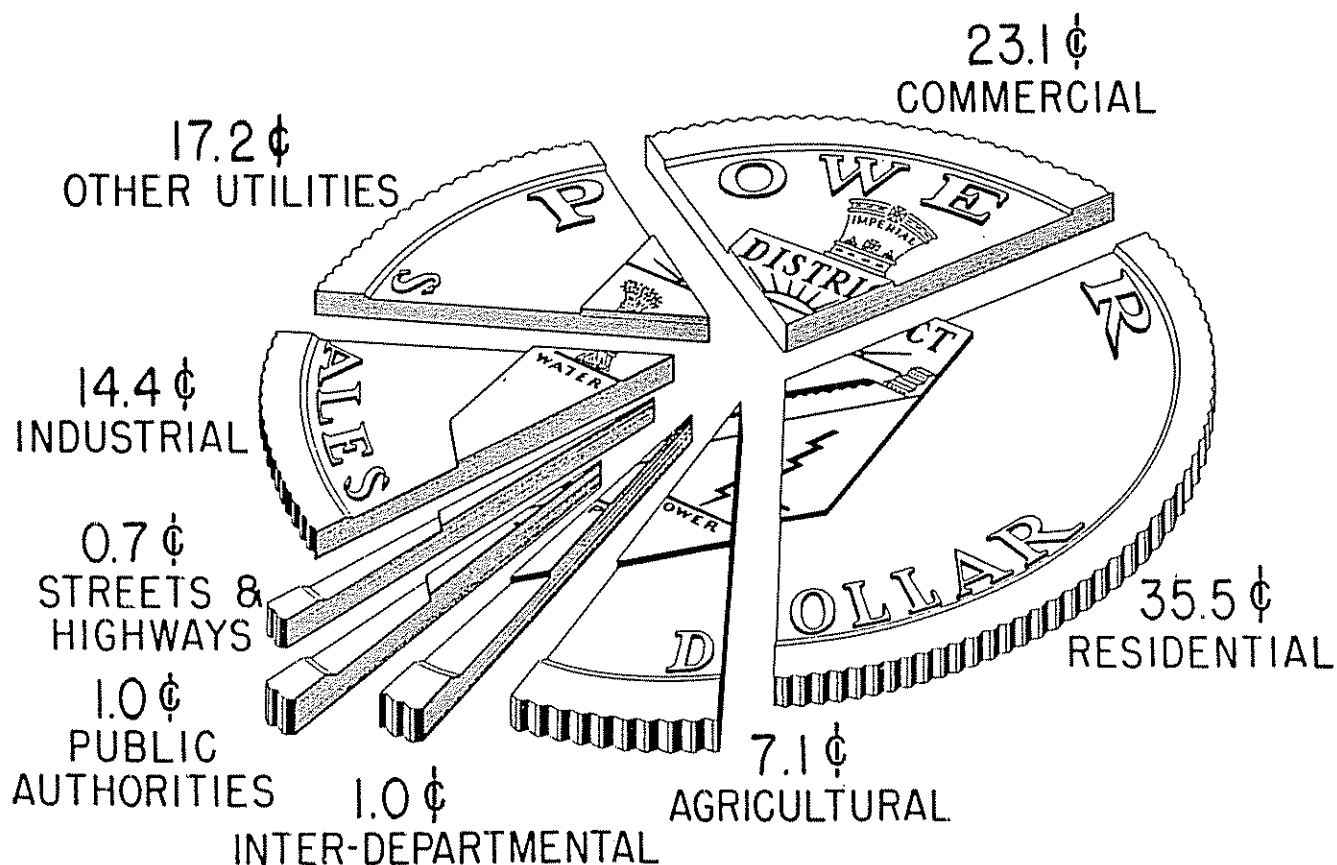
The District's power system continued to grow during 1956 with substantial gains recorded in number of customers served, revenues from the sale of electric energy, and the important average annual kilowatt-hour usage by residential consumers.

There was an increase of 572 in the average number of customers

# IMPERIAL IRRIGATION DISTRICT

## Power Sales 1956

RESIDENTIAL .....	\$ 2,641,638	35.5 %
COMMERCIAL .....	1,722,405	23.1 %
OTHER UTILITIES .....	1,285,866	17.2 %
INDUSTRIAL .....	1,069,926	14.4 %
AGRICULTURAL .....	531,540	7.1 %
PUBLIC AUTHORITIES .....	73,956	1.0 %
INTER-DEPARTMENTAL .....	72,451	1.0 %
STREET & HIGHWAY .....	49,265	0.7 %
TOTAL		\$ 7,447,047 100.0 %



served during 1956, over the 1955 average. Coachella Area again accounted for the major portion of this increase with a gain of 327 customers, Imperial Valley's gain was 212 customers, while the Bard and Winterhaven area accounted for 33.

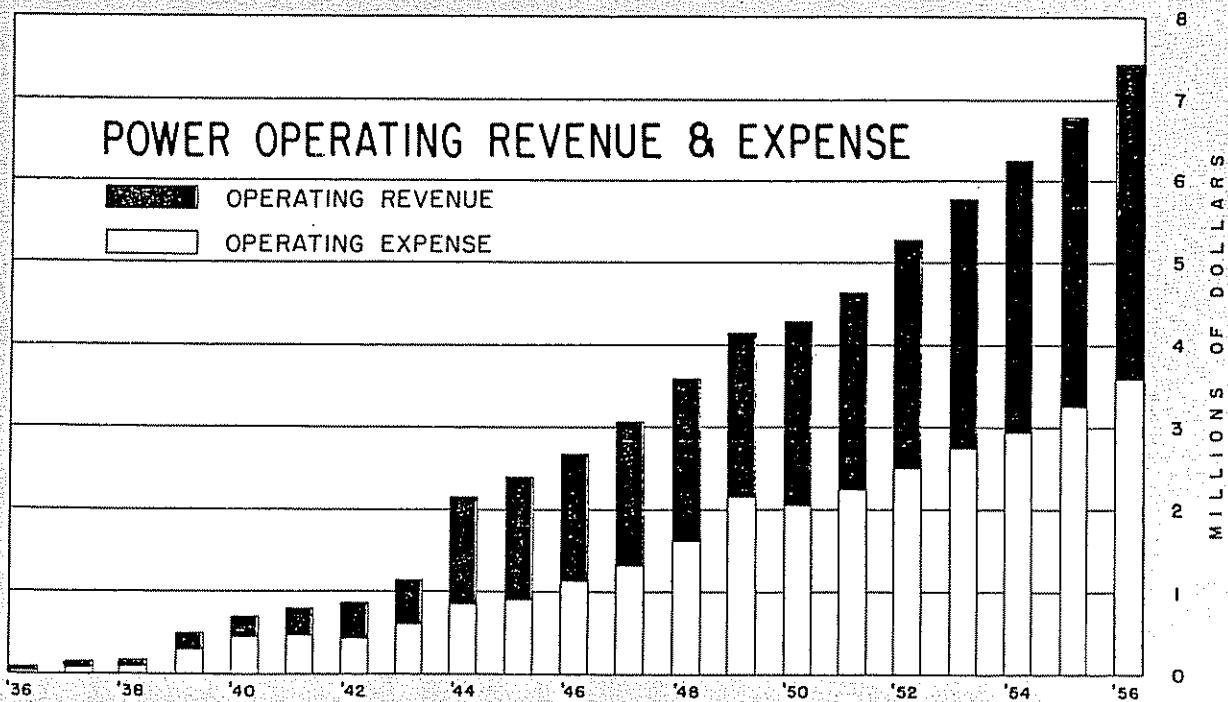
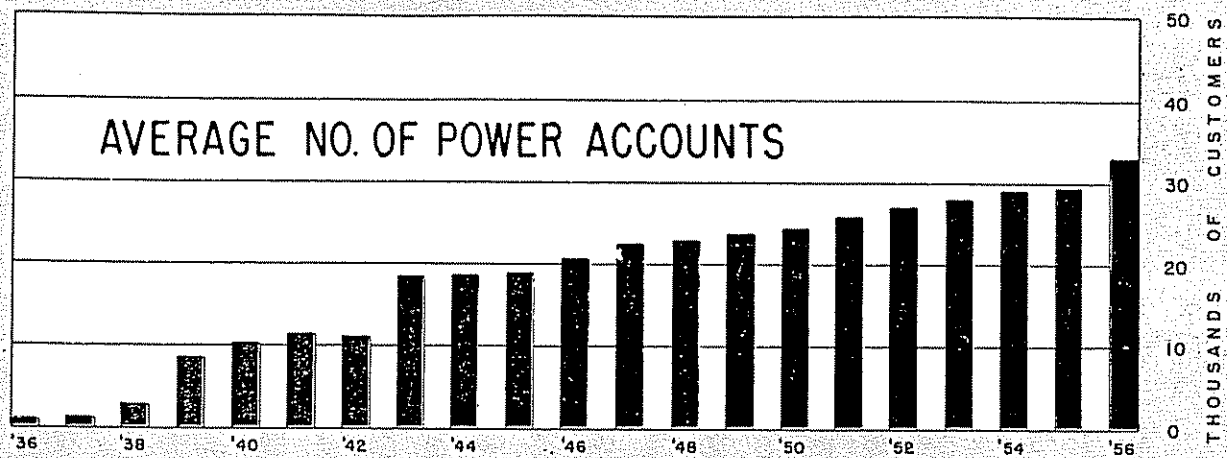
Revenue from sale of electric energy amounted to the impressive figure of \$7,447,046, an increase of nearly \$700,000 over 1955. Residential customers accounted for 35.5 per cent of the sales, with \$2,535,877 in revenue received from this class of customer. Commercial-customer sales were \$1,722,404, or 23.1 per cent. Sales to industrial accounts were \$1,069,926, or 14.4 per cent. The largest gain over 1955 was found in sales to other electric utilities, which were \$1,285,866 in 1956, as compared to \$977,112 in 1955, and accounted for 17.3 per cent of the 1956 revenue, as compared to 14.5 per cent in 1955. Agricultural power sales were \$531,539 or 7.1 per cent, while other services, including public authorities, interdepartmental, and street and highway lighting, produced revenue in the amount of \$195,670, or 2.6 per cent.

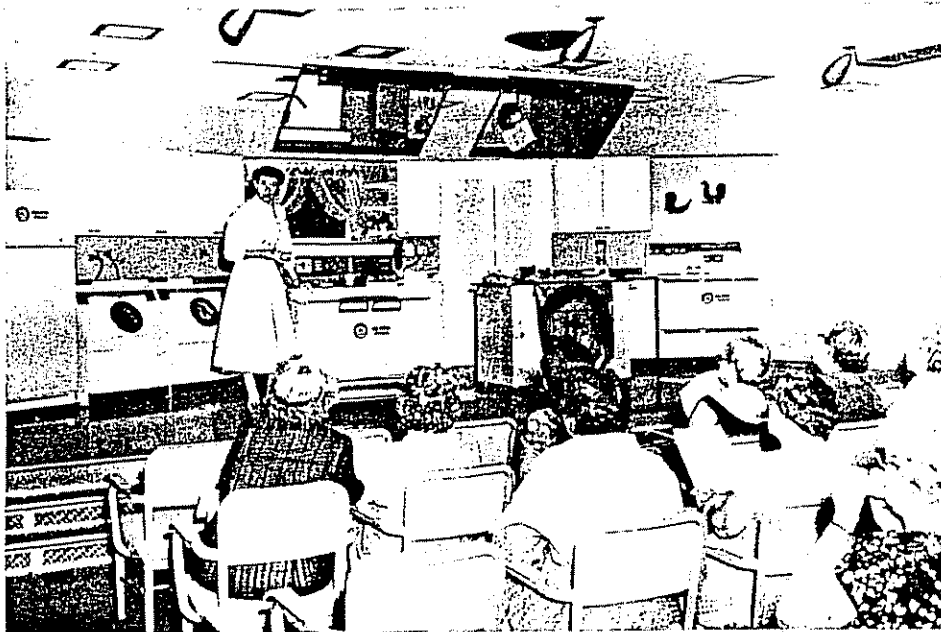
Residential usage showed a substantial gain, with the average kilowatt-hour consumption per residential consumer in 1956 reaching the imposing amount of 5,700 kilowatt-hours, an increase of 449 over the 1955 average of 5,251. Since residential domestic sales not only produce the largest percentage of revenue of any class of service but, also, the highest rate of return per kilowatt-hour, the ever-increasing usage by residential consumers is a highly important factor in the success of the power system.

The Power Sales and Service Department carried on an aggressive promotional program during 1956 aimed, primarily, at the residential consumer. The industry-wide "Live Better—Electrically" promotional program was launched in 1956. This program is designed to co-ordinate the efforts of all branches of the electrical industry in a nation-wide drive to promote the benefits of better living which electricity makes possible for home owners across the land.

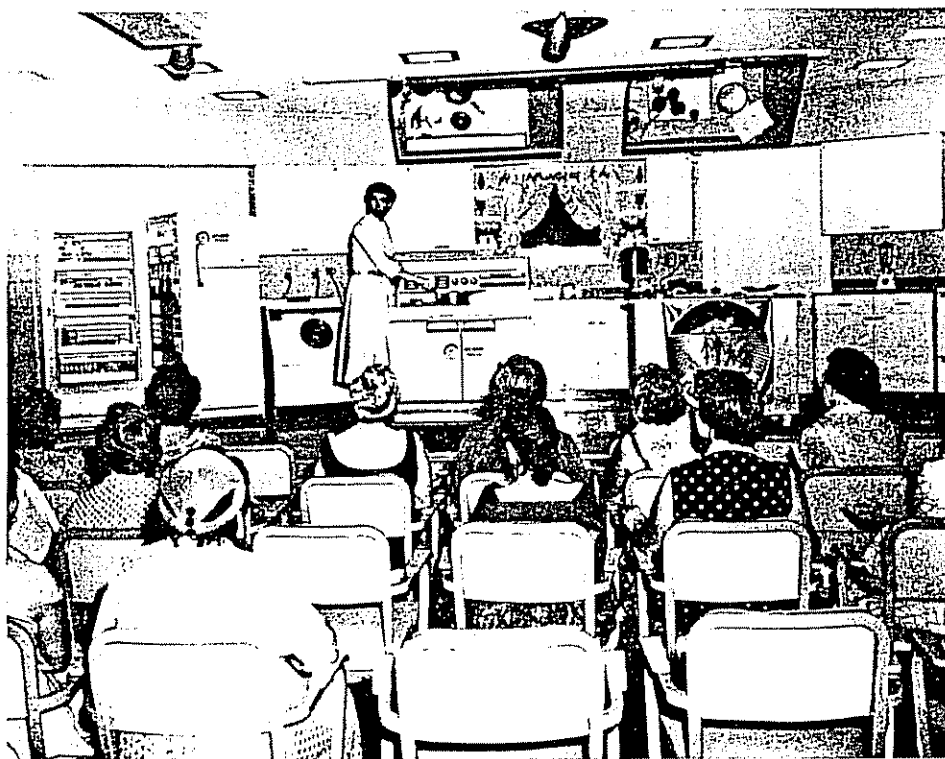
The District joined electric utilities throughout the nation in lending wholehearted support to the "Live Better—Electrically" program and served as the focal point for the promotional activities in our service area. We have incorporated the "Live Better—Electrically" theme and slogan into all our advertising and promotions.

In June of 1956, a long-planned addition to the District's sales facilities was realized with the completion of a Demonstration Kitchen located on North Imperial Avenue in El Centro. A work kitchen, stage, and small auditorium accommodating 50 persons, provides home economists with facilities for many activities, such as small-scale programs for organizations and groups of many kinds, to demonstrate effectively the advantages of electric cooking, as well as promote home freezers, automatic laundry equipment, and small appliances.

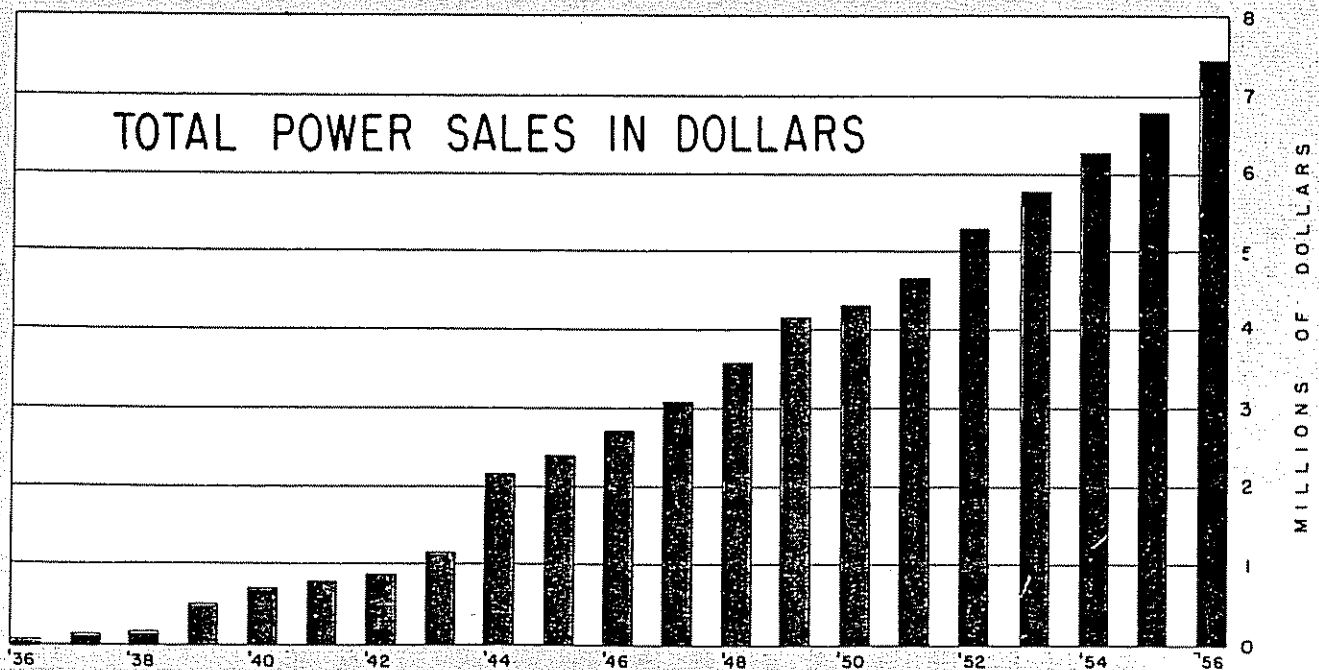
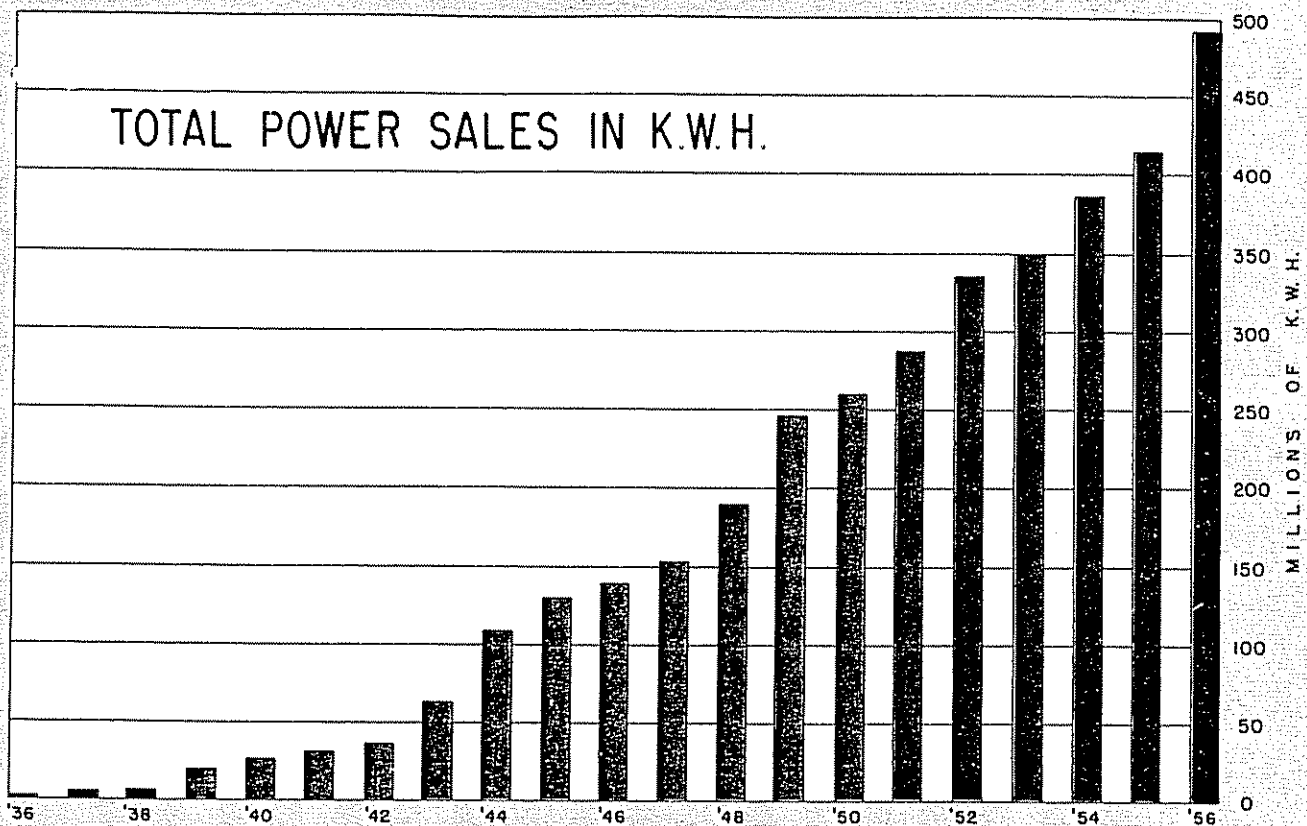




A demonstration of the advantages of electric cooking at the District's Demonstration Kitchen.



A demonstration of the advantages of electric cooking at the District's Demonstration Kitchen.



VIII.

LEGAL DEPARTMENT

#### **A. ARIZONA VS. CALIFORNIA:**

During 1956, the actual trial of Arizona vs. California, pending before the Supreme Court of the United States since 1952, commenced with hearings being held in San Francisco.

San Francisco was selected by the Special Master hearing the case as the site of trial and in April a pretrial conference was held there. In June, the taking of evidence began with the State of Arizona presenting its case. The trial continued substantially without interruption during June, July and August, at which time a recess was ordered until some time early in 1957. The State of Arizona substantially completed the presentation of its opening case and the hearings concluded with a statement on behalf of California, generally outlining the nature of the case California intended to present when hearings were resumed.

It is anticipated that the actual presentation of Imperial Irrigation District's case will start immediately upon resumption of the hearings in the early part of 1957. District's counsel will have charge of the actual presentation of District's case.

#### **B. SALTON SEA DAMAGE CLAIMS:**

Two additional claims alleging damage to property by virtue of the rising level of the Salton Sea were received during 1956. The claimants are property owners adjacent to the Sea. As of the close of the year no action had been filed based on these claims.

The two actions pending in the Superior Court of Riverside County, namely, those of Desert Beach Corporation and Ralvert and Company were inactive during the year and it is not anticipated that either case will come on for trial within the near future. In all probability at least one of the cases will come on for trial during 1957.

#### **C. CENTRAL VALLEY PROJECT LITIGATION:**

Litigation pending since 1950 in connection with water delivery contracts between the United States Department of Interior and various irrigation districts in San Joaquin Valley was submitted to the Supreme Court in June of 1955. Although it was hoped a decision would be received during 1956, the matter was still under submission before the court at the close of the year.

#### **D. MISCELLANEOUS LEGAL PROCEEDINGS:**

The legal department continues to advise with all of the operating departments in connection with a multitude of legal problems which arise day by day in connection with the overall operations of the District.

The legal department is constantly called upon to render legal opinions on a large variety of matters.

In addition, there are a variety of court proceedings constantly in

progress. The District continues to quiet title to tax deeded lands and, thus, to make them available for sale and restoration to the tax rolls. Four such actions were completed during 1956 and five were pending at the close of the year.

Sixteen legal actions were handled during the year in various courts of Imperial and Riverside Counties in connection with delinquent power accounts. These actions are in addition to the collection of delinquent power accounts involved in bankruptcy proceedings, of which there were approximately twenty during the year.

Three condemnation suits were brought to a conclusion during the year, all without the necessity of actual court trial. One additional suit was instituted during the year and was pending at the year's end.

Miscellaneous damage claims arising from a variety of circumstances were handled, involving claims against Imperial Irrigation District, as well as claims by Imperial Irrigation District against others for damage to District property. In this category two such legal actions were handled through the Superior Court and were taken by unsuccessful claimants against the District to the District Court of Appeals.

The total volume of legal work handled by the department has continued to increase, as it has during the past several years.

IX.

EAST MESA

#### A. EXPERIMENTAL FARM NO. 1:

Experimental Farm No. 1 was originally established by the Bureau of Reclamation and is located on the south side of the All-American Canal at Drop No. 3. When the District assumed operation of this farm in 1947, the canals, laterals and other irrigation works were in operation. This farm contains 537 acres and has been subleased by the District during the past ten years.

At the present time and for the past three years, Eldridge and Johnson of El Centro have operated this farm under a sublease. During the year 1956, the entire farm was in alfalfa except small acreages which were in barley and sudan grass. The alfalfa produced 600 tons of hay in addition to providing 47,845 head days of pasture. The barley produced 71 tons of threshed grain and the sudan 130 tons of hay.

The average water duty per acre was 14.3 acre-feet per acre, as compared to 15 acre-feet per acre for 1955. The entire farm is flood irrigated.

#### B. EXPERIMENTAL FARM NO. 2:

Unit No. 1 (31 acres) is irrigated by a wheel-move sprinkler system. It was in alfalfa during the year and produced 2,541 bales of hay which sold for \$2,671, and required 6.05 acre-feet of water per acre. In December, the alfalfa was reseeded at the rate of 7 pounds of seed per acre.

Unit No. 2 (28.5 acres) is irrigated by a wheel-move sprinkler system. It was seeded to alfalfa in September, 1955, and produced 3,626 bales of hay during 1956, which sold for \$4,221. Water duty was 6.05 acre-feet per acre. No reseeded was required in 1956.

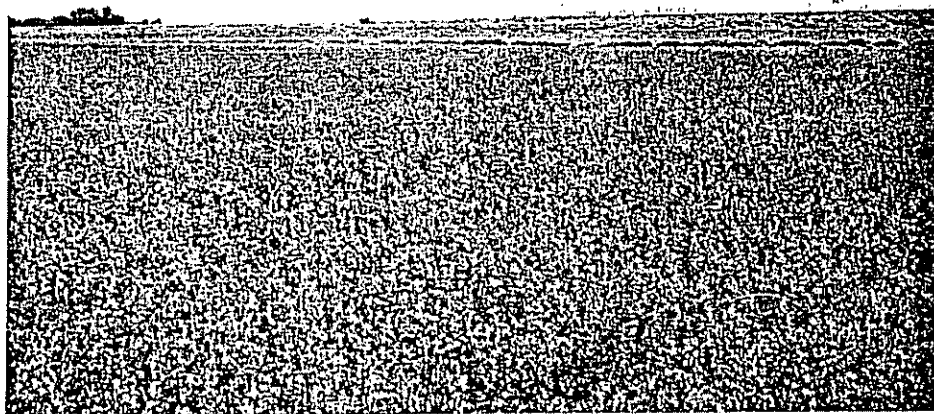
Unit No. 3 (39.6 acres) is irrigated by a wheel-move sprinkler system. In May, 20 acres were planted to sudan, the remaining 19.6 acres were left in alfalfa. Following harvest of the sudan, the 20 acres were planted to oats and barley. There were 1,805 bales of hay produced which sold for \$1,689. A total of 6.25 acre-feet of water per acre was required.

Unit No. 4 (38.9 acres) is irrigated by a wheel-move sprinkler system. It was in alfalfa and produced 1,870 bales of hay which sold for \$2,058. Water duty was 6.72 acre-feet per acre.

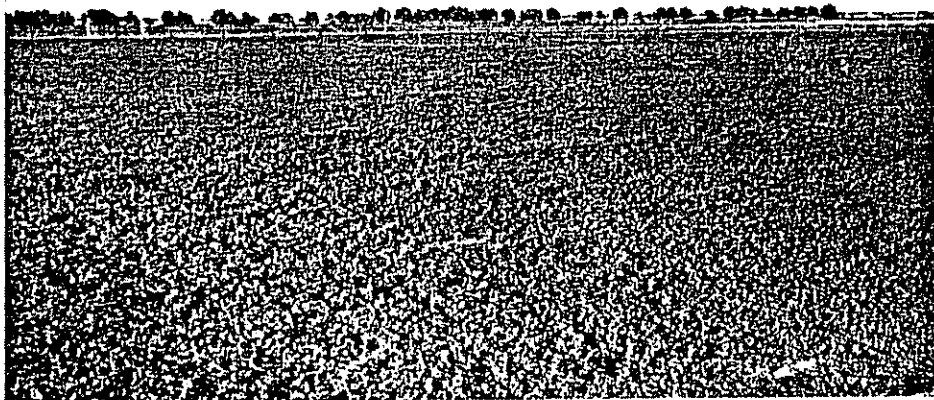
Unit No. 5 (40 acres) had 20 acres in alfalfa and 20 acres in sudan. Production amounted to 3,048 bales of hay which sold for \$3,351. Wheel-move sprinkler system is used and required 6.74 acre-feet of water per acre. The entire 40 acres were reseeded to alfalfa in December.

Unit No. 6 (42 acres) produced 2,009 bales of alfalfa which sold for \$2,377. Wheel-move sprinkler system is used and required 6.74 acre-feet of water per acre. It was reseeded to alfalfa in December.

Unit No. 8 (40 acres) was in alfalfa until May at which time the entire acreage was planted to sudan. Following harvest of the sudan it was planted to oats. There were 1,481 bales of hay produced which sold



Alfalfa in windrows, with baled hay in background on Unit No. 5, Experimental Farm No. 2.



Alfalfa on Unit No. 9, Experimental Farm No. 2. Ames Company wheel-movement sprinkler system in background.

for \$1,285. Irrigation by a wheel-move sprinkler system required 7.13 acre-feet of water per acre.

Unit No. 9 (38 acres) is irrigated by a wheel-move sprinkler system. It was in alfalfa until December at which time oats were planted. There were 3,091 bales of hay produced which sold for \$3,225. Water duty was 7.16 acre-feet per acre.

Unit No. 10 (34 acres) was in alfalfa until November when 17 acres were planted to oats. Flood irrigation is used and required 19.51 acre-feet of water per acre. Production amounted to 3,549 bales of hay which sold for \$3,655.

Unit No. 12 (40 acres) was in alfalfa during the year, producing 3,416 bales of hay which sold for \$3,707. It is irrigated by wheel-move sprinkler system and used 7.16 acre-feet of water per acre.

Unit No. 13 (40 acres) was in alfalfa during the year, producing 3,319 acres of hay which sold for \$3,441. Irrigation by a wheel-move sprinkler system required 7.16 acre-feet of water per acre.

Unit No. 14 (40 acres) was in alfalfa until November when 18 acres were planted to oats. There were 3,638 bales of hay produced which sold for \$3,640. Flood irrigation required 18.57 acre-feet of water per acre.



View of Ames Company wheel-movement sprinkler line irrigating alfalfa on Unit No. 13, Experimental Farm No. 2.



Looking east at alfalfa field on Unit No. 13 being irrigated by Ames Company wheel-movement sprinkler line.

X.

NORTH END IMPROVEMENT PLAN

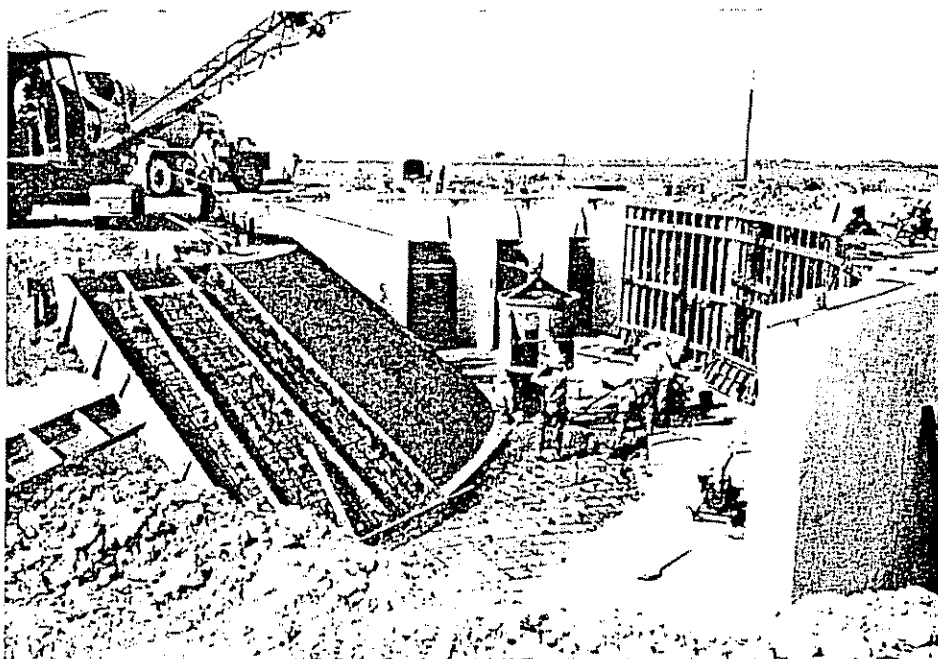
#### A. GENERAL COMMENTS:

Since 1942, when the District began taking its entire water supply through the All-American Canal, a program of construction work designed to increase the capacity of East Highline Canal has been in progress. This added capacity is required to provide water direct from East Highline Canal to the Vail area which lies between the Alamo and New Rivers west of Calipatria. This program consisted of construction of structures of sufficient capacity to handle the additional water required and of widening East Highline Canal to provide added capacity.

This project, which was completed on July 16, 1956, consists of 10.35 miles of canal of 300 cubic feet per second capacity and the necessary control structures. Final cost of this facility which will serve some 20,000 acres of farm land was \$527,425.



Downstream view of a typical drop structure in service on the Vail Supply Canal.



Pouring the sloping wall on the inlet transition of the Vail Supply Canal Heading at the East Highline Canal.

XI.

MESQUITE LAKE AREA  
IMPROVEMENT PLAN

#### A. GENERAL COMMENTS:

For the past several years, a program of construction work on East Highline Canal has been carried on wherein capacity was provided to supply the Mesquite Lake area with water direct from East Highline Canal. Starting in 1946, the program provided for construction of structures in the canal of sufficient capacity to handle the additional water required.

The final phase of the program calls for construction of a canal from East Highline Canal to the Mesquite Lake area, where it will serve more than 20,000 acres of farm lands. This canal which will be 10 miles in length will have a capacity of 300 cubic feet per second and will be concrete lined part of the way.

Actual construction was begun in 1956 and is scheduled for completion in 1958. The total estimated cost of \$1,074,700 will be paid out of water toll revenue.

XII.

IRRIGATION DIVISION  
FEDERAL CONTRACTS

## A. PUBLIC LAW 750—81st CONGRESS:

On September 2, 1950, Public Law 750 was adopted by the Congress of the United States. Under the provisions of the act, Imperial Irrigation District is to receive a credit not to exceed \$3,000,000 which covers costs paid or incurred in connection with the construction and operation and maintenance of flood-protective levee systems along or adjacent to the lower Colorado River in Arizona, California, and Lower California, Mexico.

In accordance with the requirements of Public Law 750, which provides that the American Commissioner of the International Boundary and Water Commission, United States and Mexico, shall determine the amount of credit to be allowed to Imperial Irrigation District, the Board of Engineers to the International Boundary and Water Commission in 1954 issued a report on "Costs Paid or Incurred by Imperial Irrigation District for Flood Protection Works Along, or Adjacent to the Colorado River in Arizona, California, and Lower California, Mexico." The report as issued reflects costs paid or incurred by the District far in excess of the \$3,000,000 limit provided by the act.

Quiet title actions required to clear title to the property being conveyed to the United States was completed in 1956 and the required documents forwarded to Washington. Approval by the various departments: State, Justice, and Interior required considerable time, and additional information requested from these various departments consumed more time. While this matter was followed closely by the District's legal counsel in Washington, all of the requirements of the various departments in Washington could not be met by the end of the year. Advice from the Department of the Interior in Washington at the end of the year was to the effect that "Upon being advised by the Department of State that final opinion approving title has issued from the Department of Justice, the credit authorized by the Act of September 2, 1950, will be appropriately entered upon the books of the Bureau of Reclamation of this Department."

When finally allowed, this credit will be applied against the next succeeding annual payments on the All-American Canal as they become due and payable from Imperial Irrigation District to the United States.

## B. ALL-AMERICAN CANAL CONTRACT:

Imperial Dam and the All-American Canal were constructed pursuant to the terms of a contract dated December 1, 1932, between the District and the United States of America. The District is obligated to pay its proportionate share of the cost of the works constructed under the contract, without interest, in annual installments over a period of 40 years. These installments are to be 1 per cent each for the first 5 years, 2 per cent each for the next 10 years, and 3 per cent each for the final 25 years, of the total cost of the District's share of the works.

The District is required when necessary to levy and collect assessments such that, regardless of defaults or delinquencies in the payment of assessments, the United States shall receive its money when due.

On July 14, 1954, Imperial Irrigation District was informed by the Secretary of the Interior that its share of the costs of the All-American Canal, to be repaid to the United States under the terms of the contract of December 1, 1932, was \$25,020,000.90. Under the terms of the contract,

the District is required to pay the United States the net proceeds from electric power generated on the All-American Canal and had, prior to March 1, 1955, which is the date the first payment became due, advanced approximately \$1,142,000 to be applied and credited against payments as they become due. After application of the first and second payments there remained, as a credit to Imperial Irrigation District, \$699,621.43 which will be applied to subsequent payments and which will be supplemented each year by additional net proceeds as they become due and payable.

For some time the District has had before the Secretary of the Interior three questions relating to the allocation of the construction costs of the All-American Canal Project.

These questions which still remain unsettled are:

1. That the Gila (Arizona) Project should share in the cost of the Imperial Dam Sluiceway to the extent of \$140,000.
2. That the Gila Project should share in the cost of providing 2,000 second-feet of capacity for the Yuma Project in the All-American Canal down to Siphon Drop, which had to be provided without cost to the Yuma Project. The Gila Project share of this cost would be \$220,000.
3. That, as an experiment, Imperial Irrigation District should be permitted to operate the sluiceway at Imperial Dam for a one year, thereby saving all the users of the dam \$25,000 a year in operating costs.

XIII.

COLORADO RIVER BOARD

## COLORADO RIVER BOARD-

During the year 1956, the Colorado River Board continued its many activities involved in protecting the rights of the State of California and its people in and to the use of the waters of the Colorado River.

During the year, the Board held twelve regular meetings and was represented at twelve other meetings and conferences pertaining to water and water rights.

Considerable progress was made during 1956 in the United States Supreme Court case of Arizona vs. California, et al. In January, the Special Master appointed by the Court, Simon H. Rifkind, held a preliminary conference with all parties at his offices in New York City. Procedures to be followed in conducting the case were discussed, and it was agreed that the trial would be held in San Francisco.

In April, a Pre-Trial Conference was held in San Francisco, following which the Special Master made a one-week inspection trip of projects in the lower Colorado River Basin.

Actual trial of the case began in San Francisco on June 14 and continued into August, with one recess in July. The State of Arizona, being the complainant, was the first to be heard. The presentation of Arizona's case occupied all but the last few days of the session. Just prior to the end of the session, Northcutt Ely, Special Assistant Attorney General handling the case for the State of California under Attorney General Brown, presented the opening statement on behalf of the State. He was followed by the attorney for the State of New Mexico, who presented the opening statement on behalf of that State. The hearings recessed August 27 and will be resumed in February, 1957.

The Colorado River Board was represented throughout the entire session of the Court by one or more of its members and a number of its staff.

During the year, the staff, supplemented by several consulting engineers employed by the Board, was active in assisting the Attorney General's staff in the preparation of California's case. Fine co-operation and assistance was also received from the Director of the Department of Water Resources and his staff in this same connection.

It will be recalled that in April, 1955, the U. S. Senate passed a bill, S. 500, to authorize construction of the Colorado River Storage Project, and in June, 1955, the House Committee on Interior and Insular Affairs approved a somewhat similar bill, H. R. 3383. Although the Rules Committee reported out H. R. 3383, it was not brought up for a vote of the House in that year. However, H. R. 3383 was taken up by the House early in its 1956 session, and after having been amended in a number of respects, was passed on March 1 and given the number S. 500. The two versions of S. 500 then went to conference between the Senate and the House, where agreement was reached, and the report of the Conference Committee was agreed to by the Senate and by the House on March 28. On April 11, S. 500 was approved by the President and became Public Law 485.

As finally approved, Public Law 485 contained several provisions which are of benefit to the Lower Basin and which will, to some extent at least, protect the rights of that Basin in accordance with the principles for which the Colorado River Board had sought recognition.

The Fryingpan-Arkansas Project, another Upper Basin project, was

before Congress again in 1956. The Senate Committee on Interior and Insular Affairs, in April, 1955, had favorably reported a bill—S. 300—to authorize construction of this project, but the House Committee took no action on a similar bill, H. R. 412, during that year. On July 12, 1956, the Senate passed S. 300. On July 25, 1956, the House Committee on Rules reported favorably on H. R. 412, which had been approved by the House Committee on Interior and Insular Affairs on January 23. However, on July 26, the House, by vote, refused to adopt the rule authorizing consideration of H. R. 412, which had the effect of killing the bill. It is anticipated that new bills to authorize construction of the project will be introduced in both the House and the Senate early in their 1957 sessions.

The State Legislature, early in its 1956 session, again took under consideration bills to create a State Department of Water Resources. It was proposed to consolidate a number of State agencies dealing with water resources and transfer their duties and responsibilities to a proposed Department of Water Resources. The Colorado River Board was one of the agencies whose duties and responsibilities were to be so transferred, but the transfer was not to become effective until after completion of the Supreme Court case of Arizona vs. California. This provision of the bill was successfully opposed by all of the agencies represented on the Colorado River Board, with the result that when the bill was passed in April, reference to the Colorado River Board had been deleted. Upon the bill's becoming effective, Governor Knight appointed State Engineer Harvey O. Banks to be the Director of the newly created Department of Water Resources.

A preliminary draft of Bulletin No. 3—report on the California Water Plan—was submitted to the Board and other California water interests for comment. The Board, in co-operation with the agencies it represents, submitted suggested revisions relating almost entirely to sections of the report dealing with the areas adjacent to the Colorado River or having rights in and to the use of the waters of that River. At the public hearings on Bulletin No. 3, conducted by the State Water Resources Board, the Colorado River Board was represented by members of its staff but did not participate, since assurances had been given that the suggested revisions presented by the Colorado River Board would be given favorable consideration.

The Colorado River Board, through its legal counsel, kept in contact with the work of the Joint Boundary Commissions of California and Arizona during the year. No final agreement had been reached by the end of the year on the proposed location of the boundary between the two States.

In September, Mr. Fred Simpson was re-elected Chairman of the Colorado River Board and Colorado River Commissioner for the ensuing year.

XIV.

CONCLUSION

## CONCLUSION:

During the past year the District has continued in its efforts to provide adequate service to all points within the area. Our maintenance program for irrigation, drainage, and power facilities has been planned so as to provide uninterrupted service to all users. Our construction program is designed to provide adequate facilities to serve the ever increasing demand brought about by agricultural and industrial expansion and also to provide a safe margin of reserve at all times.

This planning plus the co-operation and wholehearted support of the people of the Valley has made our District the great organization that it is today.

I sincerely appreciate the conscientious manner in which the officers and employees of the District and the people of the Valley have worked together in solving the problems we have encountered.

I also wish to express my appreciation to Mr. Vaness Jeffries, Business Manager, Imperial Irrigation District, and to the other officers and personnel of the District in preparing this report.

*Evan T. Hewes*

EVAN T. HEWES, President  
Board of Directors